SUPPLEMENTAL
SITE INVESTIGATION RESULTS REPORT
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

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I. INTRODUCTION

A. Background and Purpose

This report has been prepared by ENVIRON International Corporation (ENVIRON), on behalf of Quality Distribution, Inc. (QDI), to present the results of a supplemental site investigation completed at the Chemical Leaman Tank Lines, Inc. (CLTL) facility in Newark, New Jersey (the "Site"). The Site location is depicted on Figure 1 and features on the Site are presented on Plate 1. Prior characterization actions at the Site have included the completion of a preliminary assessment and a site investigation by BCM Engineers, Inc. (BCM).

The scope of work for the supplemental site investigation was presented in a letter from ENVIRON to QDI dated February 25, 2000. The scope of supplemental site investigation was developed based on recommendations provided in the *Site Investigation Results Report* (BCM, January 1999) and incorporated actions requested by the New Jersey Department of Environmental Protection (NJDEP) in letters dated November 23, 1999 and June 15, 2000. The following sections provide a brief description of the Site setting and geology. Detailed descriptions of the site history, site setting, potential areas of environmental concern (AOCs), and prior investigation results are provided in the *Preliminary Assessment Report* (BCM, April 1998) and the *Site Investigation Results Report*.

B. Site Description

1. Site Setting

The Site is located in an area of mixed commercial and industrial land use. The Site is bounded to the east by the Passaic River and to the west by Doremus Avenue. Commercial and heavy industrial properties are located to the north, south, and west of the Site. The Site has been used as a tanker truck washing facility and truck trailer terminal since 1970.

2. Geology

Based on field observations made during BCM's site investigation and ENVIRON's supplemental site investigation, the Site is underlain by up to 14.5 feet of fill material. The fill material has been noted to consist of ash, cinder, coal fragments, concrete and brick pieces, wire, and plastic. Underlying the fill material is a naturally occurring peat and gray clay meadow mat layer. These recent deposits overlie unconsolidated glacial till deposits.

The glacial till is underlain by several bedrock formations. The Triassic Brunswick formation, an interbedded soft red shale and sandstone bedrock formation, underlies the Site (Herpers and Barksdale; 1951). The Brunswick formation is reportedly located at approximately 50 feet below ground surface (bgs) and the formation is approximately 6,200 feet thick. Underlying the Brunswick formation is the 490-feet-thick Lockatong formation, a purplish-grey argillite. The Lockatong formation is underlain by the Stockton formation, a red, buff, or grey arkosic sandstone that is approximately 6,000 feet thick (Benino et. al.; 1970). These three units are collectively referred to as the Newark group. The Newark group dips at 10 to 20° northwest. The softer beds are locally bent into faulted anticlines and synclines, while harder beds form ridges. Underlying the Newark group are Paleozoic rocks from the Cambrian to the Ordovician periods. The youngest formation is the Martinsburg, a dark grey shale. Underlying this formation is the dark gray limestone of the Jacksonburg formation. The Cambrian Hardyston formation, a grey to brown pebbly sandstone, underlies the Jacksonburg formation. The oldest and deepest rocks in the stratigraphic column are Precambrian gneisses, granites, and marbles.

3. Hydrogeology

Based on field observations conducted during the supplemental site investigation, groundwater occurs at approximately 0.5 to 6.0 feet bgs. Ground water flow is suspected to be directed toward the east in the direction of the Passaic River. The groundwater regime in the shallow water-bearing zone at the Site may be locally influenced by tidal fluctuations in the Passaic River, which is the closest water body to the Site. Underlying the shallow water-bearing zone is a semi-confined to confined lower aquifer in the Brunswick formation.

C. Report Organization

The following sections present results of the supplemental site investigation. Section II provides a brief description of each area of concern (AOC), summarizes findings of the supplemental site investigation, and provides recommendations. Section III presents a summary of the site investigation conclusions and recommendations.

II. SUPPLEMENTAL SITE INVESTIGATION RESULTS

A. Overview

A total of 15 potential AOCs were identified at the Site based on current and historical operations, review of historical aerial photographs, and results of a September 23, 1998 inspection by NJDEP. Provided below is a description of the supplemental site investigation results at each AOC and recommendations for additional actions, where applicable. The 15 AOCs are discussed individually below under the following seven subheadings: aboveground storage tanks; underground storage tanks, raw materials and process residuals handling and storage; wastewater handling system; areas of apparently discolored soil and historical discharges; other areas; and historical fill material. The following sections also provide results of a ground water investigation completed during the supplemental site investigation to characterize ground water quality downgradient of previously identified VOC concentrations in soils and to characterize ground water quality in the vicinity of operational areas at the Site. Table A-1 in Appendix A correlates each AOC with descriptions provided in NJDEP's November 23, 1999 letter. Table A-2 in Appendix A summarizes the sample identification, collection method, and analytical parameters at each sample point.

Except where noted in the following sections, soil and ground water sampling activities were completed using Geoprobe drilling techniques. Geoprobe drilling services were provided by TerraProbe Inc., of Carversville, Pennsylvania, under the supervision of an ENVIRON geologist, using truck and track-mounted Geoprobe units. Installation of the Geoprobe sample points complied with NJDEP guidance for permits, licenses, and boring sealing and grouting. State of New Jersey permit, installation, and licensing requirements for monitoring wells did not apply as tools were not left in the ground for longer than 48 hours and the total depth at any single boring did not exceed 25 feet bgs. Soil boring logs, which provide soil classification information and field screening results, are provided in Appendix B.

Analytical services were provided by Accutest Laboratory of Dayton, New Jersey, a New Jersey-certified laboratory. Samples collected during the supplemental site investigation were placed directly into laboratory-provided glassware and stored on ice in a cooler under appropriate chain-of-custody protocol. Laboratory deliverables have been provided as Attachments A through J, and an electronic data deliverable has been included with this report.

B. Aboveground Storage Tanks

1. Former No. 4 Fuel Oil AST (AOC 1)

a) Background

During August 1998, BCM collected four surface soil samples to characterize soil quality in the area surrounding the former No. 4 fuel oil AST location. Reported concentrations of polynuclear aromatic hydrocarbons (PAHs) at one sample point (GP-1) exceeded the corresponding NJDEP Residential Direct Contact Soil Cleanup Criteria. Soil boring GP-1 is located northeast of the concrete retaining wall associated with the former AST. In their November 23, 1999 correspondence, NJDEP requested that additional soil sampling be completed to delineate the vertical and horizontal extent of the impacted soils at soil boring GP-1. NJDEP also requested that additional soil borings be completed within the former secondary containment area at locations around the perimeter of the former AST.

b) Investigation Results

On July 18, 2000, ENVIRON completed three soil borings (GP-1A, GP-1B, and GP-1C) to 8 feet bgs in the vicinity of prior sample location GP-1. In addition to soil sampling in the vicinity of GP-1, five soil borings (SB-1 through SB-5) were completed to 4-8 feet bgs around the perimeter of the former AST. Based upon field observations and review of analytical data, six additional delineation soil borings were completed in the vicinity of GP-1 on July 19, 2000 (soil borings GP-1D and GP-1E) and on August 10, 2000 (soil borings GP-1F through GP-1I). Sampling locations are depicted on Figure 2 and Plate 1. Dense vegetation was present within the eastern portion of the former secondary

containment area during the supplemental site investigation. No surface stains were noted within the former secondary containment area during the supplemental site investigation.

Continuous soil cores were collected at each soil boring and field screened using a photoionization detector (PID) to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed at soil borings SB-1, SB-3, GP-1B, GP-1D, GP-1F, or GP-1G. PID readings during field screening at these boring locations, as well as soil borings SB-4, SB-5, and GP-1H, were consistent with background concentrations. A petroleum hydrocarbon-like odor and slightly elevated PID readings (45 ppm maximum) were encountered during field screening at soil borings GP-1A, GP-1C, and GP-1I. Dark staining was observed at soil boring GP-1I at approximately 5.8 and 6.3 feet bgs, and free-phase hydrocarbons were observed from approximately 4.0 to 6.0 feet bgs at soil boring SB-5. Elevated PID readings (generally greater than 100 ppm) and a strong petroleum hydrocarbon-like odor were encountered during field screening at soil borings SB-2 and GP-1E. Two soil samples were collected from soil borings GP1C and GP1E and analyzed for PAHs and total petroleum hydrocarbons (TPHCs). Soil sampling intervals were targeted toward zones within and beneath potentially impacted soils. Additionally, one soil sample was collected from soil boring GP1B and one soil sample was collected from soil boring GP1D at intervals which targeted the approximate depth of impacted soils observed during field screening at GP1A. The soil sample collected at soil boring GP1F targeted impacted soils at GP1C, while soil samples collected from soil borings GP1G, GP1H, and GP1I targeted impacted soils identified in soil sample GP1E-SS02.

Analytical results associated with the soil sampling activities at AOC 1 are summarized in Table 1. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 2. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. Reported TPHC concentrations in the soil samples collected around the perimeter of the former No. 4 fuel oil AST were below NJDEP's 10,000 mg/kg health-based criterion for total organic contaminants. Reported TPHC concentrations in the shallow soil samples collected at soil borings GP1C (15,400 mg/kg), GP1E (12,100 mg/kg), and GP1I (10,4000 mg/kg) exceed NJDEP's 10,000 mg/kg health-based criterion for total organic

contaminants. Reported TPHC concentrations for the deep soil samples collected from soil borings GP1C and GP1E were below NJDEP's total organic cap criterion.

Consistent with soil sampling results from locations across the Site, PAHs were detected in soil samples collected in the vicinity of the former No. 4 fuel oil AST and sample location GP-1 at concentrations exceeding NJDEP's corresponding Residential and Non-Residential Direct Contact Soil Cleanup Criteria. However, the reported PAH concentrations are within the range of concentrations typically detected in historic fill material (as defined in the Historic Fill Database presented in the *Technical Requirements for Site Remediation*) and are not believed to be associated with historical releases or Site operations. In addition, the reported PAH concentrations in soils in the vicinity of the former No. 4 fuel oil AST are within the range of PAH concentrations detected in the historic fill material at the Site. As such, the PAH concentrations at AOC 1 do not appear to be indicative of historical releases from the former AST.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON proposes to complete five additional soil borings to delineate the extent of the TPHC-impacted soils at AOC 1 and further evaluate the free-phase hydrocarbons identified at soil boring SB-5. Two soil borings will be positioned to the east and south of soil boring GP-1I and three soil borings will be completed in the vicinity of SB-5. Continuous soil cores will be collected at each soil boring and field screened using a PID to identify potentially impacted zones. One soil sample will be collected from each soil boring and analyzed for TPHCs. Sampling intervals will be targeted toward impacted soils or toward the prior sampling interval at GP-1I if potentially impacted zones are not identified.

One downgradient delineation boring will be converted to a temporary monitoring well to characterize ground water quality downgradient of the impacted soils and evaluate potential ground water impacts associated TPHCs and free product in soils. The temporary well will be constructed of 1-inch diameter PVC and will be screened across the water table. A ground water sample will be collected from the temporary well and analyzed for Priority Pollutant volatile organic compounds plus a 10-compound forward library search

(VOC+10) and Priority Pollutant base/neutral extractable compounds plus a 15-compound forward library search (BN+15).

ENVIRON recommends that a deed notice be established to address the PAH concentrations in the historic fill material at the Site. The deed notice will be prepared following completion of the site characterization actions at the property.

2. Two 20,000-Gallon Diesel Fuel ASTs (AOC 1A)

a) Background

During November 1998, BCM collected one surface soil sample and one shallow subsurface soil sample from beneath each of the two 20,000-gallon diesel fuel ASTs which provide product to the Pre-Solv Area. Reported concentrations of methylene chloride in soil sample Tank-1 collected from 1.0 to 1.5 feet bgs slightly exceeded NJDEP's Impact to Ground Water Soil Cleanup Criterion of 1 mg/kg. In their November 23, 1999 correspondence, NJDEP rejected the VOC data based on QA/QC issues and requested that soil boring Tank-1 be resampled for VOCs.

b) Investigation Results

On November 7, 2000, ENVIRON completed one soil boring (Tank-1) in the vicinity of former sample location Tank-1. The sampling location is depicted on Plate 1. Continuous soil cores were collected at soil boring Tank-1 and screened using a PID to identify potentially impacted zones. A slight, petroleum hydrocarbon odor and slightly elevated PID readings (27 ppm maximum) were encountered from 0 to 4 feet bgs. One soil sample was collected from 1.0 to 1.5 feet bgs and analyzed for VOC+10.

Analytical results associated with soil sampling in the vicinity of the 20,000-gallon diesel fuel ASTs are summarized in Table 1. VOCs were not detected in soil sample TANK1-SS01.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON recommends no further actions are warranted with respect to the two 20,000-gallon ASTs.

3. Waste Oil AST (AOC 2)

a) Background

During an NJDEP site inspection on September 23, 1998, staining was noted on concrete surfaces in the vicinity of the 250-gallon waste oil AST located inside the Maintenance Building. Following NJDEP's inspection, CLTL cleaned all concrete surfaces in the vicinity of the AST and BCM visually inspected the integrity of the concrete during the site investigation. BCM's inspection of the concrete floor did not identify cracks or pitting that would compromise the integrity of the floor. In their June 15, 2000 correspondence, NJDEP requested additional sampling be completed in the area outside of the Maintenance Building.

b) Investigation Results

On November 7, 2000, ENVIRON completed one soil boring (SB30) outside of the Maintenance Building, in the vicinity of the waste oil AST. The soil boring location is depicted on Plate 1. Soil boring SB30 was completed to 8 feet bgs and ground water was encountered at approximately 1.0 feet bgs. A petroleum hydrocarbon odor and slightly elevated PID readings ranging up to 9.8 ppm (4.0 to 4.5 feet) were encountered from 2 to 8 feet bgs. One soil sample was collected from 4.0 to 4.5 feet bgs and analyzed for VOC+10, BN+15, TPHCs, PCBs, and Priority Pollutant metals.

Analytical results associated with the soil sampling at AOC 2 are summarized in Table 1. The reported TPHC concentration of 14,300 mg/kg exceeds NJDEP's 10,000 mg/kg health-based criterion for total organic contaminants. Reported VOC, BN, and PCB concentrations did not exceed the most stringent NJDEP soil cleanup criteria.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON proposes to complete three soil borings in the vicinity of soil boring SB30 to delineate elevated TPHC concentrations. Additionally, soil boring SB30 will be resampled at a slightly deeper interval to delineate the vertical extent of impacted soils. Each soil boring will be

completed to approximately 8 feet bgs. Continuous soil cores will be collected at each soil boring and field screened using a PID. Two soil samples will be collected from each soil boring and analyzed for TPHCs. Soil sampling intervals will be targeted toward zones within and beneath potentially impacted zones. If potentially impacted zones are not identified, sampling intervals will be targeted toward the previous sampling interval (*i.e.* 4.0 to 4.5 feet bgs) and a slightly deeper interval.

C. Underground Storage Tanks

1. Former Gasoline USTs – South End of Site (AOC 3)

a) Background

During August 1998, BCM completed a geophysical survey to determine whether USTs were present at the southwestern portion of the Site. In addition, two soil samples were collected from one soil boring (GP-4[BCM-2]) and analyzed for TPHCs and VOC+10. The geophysical survey did not identify reflective signatures characteristic of a UST. However, methylene chloride was detected in one soil sample at a concentration slightly above the NJDEP Impact to Ground Water Soil Cleanup Criterion. In the November 23, 1999 letter, NJDEP requested that two additional soil samples be collected in the area and analyzed for VOC+10 and lead. Following review of the *Supplemental Site Investigation Work Plan*, NJDEP requested (in a letter dated June 15, 2000) that sampling in the area be completed in accordance with the *Technical Requirements for Site Remediation.* The revised scope of work was provided to NJDEP as an attachment to a letter from QDI dated July 26, 2000.

b) Investigation Results

On August 3 and September 11, 2000, ENVIRON completed a total of eight soil borings (SB-6, SB-7, and SB-24 through SB29) in the vicinity of the former USTs. Soil boring locations are depicted on Figure 3 and Plate 1. Each soil boring was completed to 12 feet bgs, with the exception of soil borings SB-6 and SB-7, which were completed to 4 feet bgs. Ground water was encountered at depths ranging from 0.5 feet bgs at SB-25 and SB-26 to 2.5 feet bgs at SB-6.

Continuous soil cores were collected at each soil boring and field screened using a PID to identify potentially impacted zones. Elevated PID readings (127 ppm maximum) were encountered between 0 and 8 feet bgs at each soil boring location. PID readings within the meadow mat material (encountered at approximately 8 feet bgs at boring locations SB24 through SB29) were less than 3 ppm. One soil sample was collected from each soil boring and analyzed for VOC+10 and lead. The soil sampling interval at each soil boring was targeted toward the zone displaying the highest PID reading.

Analytical results associated with the soil sampling activities at AOC 3 are summarized in Table 2. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on Figure 3. Several VOCs were detected at concentrations well below the most stringent NJDEP soil cleanup criteria. Reported lead concentrations in the samples collected from soil borings SB25, SB26, SB27, and SB29 did not exceed the most stringent NJDEP soil cleanup criteria. Lead was not detected in the soil samples collected from soil borings SB06, SB07, SB24, and SB28.

c) Recommendations

As summarized above, reported constituent concentrations in the soil samples collected during the supplemental site investigation were all below the most stringent NJDEP soil cleanup criteria. However, soil sampling completed by BCM during the site investigation identified methylene chloride at concentrations above NJDEP's corresponding Impact to Ground Water Soil Cleanup Criterion at one sample point associated with AOC 3 and at two adjacent sampling points (GP-4 and Tank-2). In addition, as detailed in Section II.I, sampling at two adjacent temporary monitoring wells (TW05 and TW06) has identified methylene chloride in ground water at concentrations above the New Jersey Class II-A Ground Water Quality Criterion.

Reported methylene chloride concentrations in soils at sample points GP-4[BCM-2], GP-4, and Tank-2 (3.9 mg/kg, maximum) were only slightly above NJDEP's Impact to Ground Water Criterion of 1 mg/kg. In addition, analyses performed during BCM's site investigation identified methylene chloride in laboratory method blanks and in quality assurance samples. NJDEP's November 23, 1999 correspondence also rejected the VOC results from GP-4[BCM-2] and GP-4. Prior to delineation of the reported methylene

chloride concentrations in soils, ENVIRON proposes to re-sample GP-4[BCM-2], GP-4, and Tank-2 to authenticate the reported methylene chloride concentrations. Continuous soil cores will be collected at each soil boring and field screened using a PID to identify potentially impacted zones. One soil sample will be collected from each soil boring and analyzed for VOC+10. Sampling intervals will be targeted toward the prior sampling interval at each soil boring.

2. Former 250-Gallon Waste Oil UST (AOC 4)

a) Background

Site investigation activities performed by BCM during November 1998 included the completion of one soil boring near the former 250-gallon waste oil UST. One soil sample (Waste-1) was collected from the boring and was analyzed for VOC+10, BN+15, PCBs, Priority Pollutant metals, and TPHCs. Although the reported constituent concentrations did not exceed the most stringent NJDEP soil cleanup criteria, NJDEP rejected the VOC, BN, PCB, and metals data based on QA/QC issues and required that additional sampling be completed.

b) Investigation Results

On August 3, 2000, ENVIRON completed one soil boring at BCM's prior sampling location. The soil boring (WASTE-1) was completed to depth of 4 feet bgs. The soil boring location is depicted on Figure 3 and Plate 1.

Continuous soil cores were collected at the soil boring and field screened using a PID to identify potentially impacted zones. PID readings above the water table (2.0 feet bgs) were consistent with background concentrations. However, slightly elevated PID readings (18 ppm) were observed from 2 to 4 feet bgs. One soil sample (WASTE1-SS01) was collected from BCM's original sampling interval (*i.e.*, 3.0 to 3.5 feet bgs) and analyzed for VOC+10, BN+15, PCBs, and Priority Pollutant metals.

Analytical results associated with the soil sampling activities at AOC 4 are summarized on Table 3. VOCs and PCBs were not detected in the soil sample and the reported bis(2-ethylhexyl)phthalate and di-n-octyl phthalate concentrations were below the most stringent

NJDEP soil cleanup criteria. No other BNs were detected in the soil sample. Relatively low concentrations of several metals were detected in the soil sample. However, all of the reported metals concentrations were well below the most stringent NJDEP soil cleanup criteria.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON recommends that no further actions are warranted with respect to the former 250-gallon waste oil UST.

3. Former Gasoline USTs – North End of Site (AOC 5)

Historical Sanborn maps depict gasoline USTs in the vicinity of the northern Site boundary. Activities completed during BCM's site investigation included the completion of a geophysical survey to identify the location of the gasoline USTs. Geophysical survey results were inconclusive due to surface and shallow subsurface interferences. In the November 23, 1999 correspondence, NJDEP requested that trench pits be excavated and soil samples be collected to characterize soil quality in the vicinity of the former USTs.

To identify the former UST locations, ENVIRON depicted the UST locations, as presented on the Sanborn maps, on a scaled site map. As shown on Plate 1, the former USTs are positioned beyond the northern Site boundary and are not part of the CLTL facility. As such, ENVIRON recommends that no further actions are warranted with respect to the former USTs.

D. Raw Materials and Process Residuals Handling and Storage

1. Pre-Solv Filling Area (AOC 6)

a) Background

During August 1998, BCM collected one surface soil sample and one shallow subsurface soil sample from one soil boring (GP-4) at the Pre-Solv Filling Area. Because this area is concrete-covered, additional samples could not be collected. Reported constituent concentrations in each soil sample were below the most stringent NJDEP soil cleanup criteria. However, the November 23, 1999 correspondence from NJDEP requested that

one additional soil boring be completed at the Pre-Solv Filling Area due to the long operational period.

b) Investigation Results

On August 3, 2000, ENVIRON completed one soil boring (SB08) to a depth of 4 feet bgs at the Pre-Solv Filling Area. The soil boring location is depicted on Figure 4 and Plate 1. Ground water was encountered at approximately 3.0 feet bgs.

Continuous soil cores were collected at the soil boring location and field screened using a PID to identify potentially impacted zones. Elevated PID readings (62 to 184 ppm) were encountered during field screening. One shallow soil sample (SB08-SS01; 0.9 to 1.4 feet bgs) and one deep soil sample (SB08-SS02; 2.5 to 3.0 feet bgs) were collected at soil boring SB08 and analyzed for VOC+10 and TPHCs. Soil sampling intervals targeted the 6-inch interval immediately below the concrete (SB08-SS01) and the zone displaying the highest PID reading (SB08-SS02).

Analytical results associated with the soil sampling activities at AOC 6 are summarized in Table 4. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on Figure 4. Benzene was detected at a concentration of 1.86 mg/kg in soil sample SB08-SS02, which slightly exceeds the corresponding NJDEP Impact to Ground Water Soil Cleanup Criterion of 1 mg/kg. The reported benzene concentration in soil sample SB08-SS02 was below NJDEP's Residential and Non-Residential Direct Contact Soil Cleanup Criteria (3 and 13 mg/kg, respectively). Benzene was not detected in shallow soil sample SB08-SS01. Ethylbenzene was detected in the shallow soil sample at a concentration below the most stringent NJDEP soil cleanup criteria. Toluene and xylenes were detected in the deep soil sample at concentrations below the most stringent NJDEP soil cleanup criteria. No other VOCs were detected in the soil samples collected at soil boring SB08. The reported TPHC concentration in the shallow soil sample at SB08 (11,000 mg/kg) exceeds the NJDEP health-based criterion of 10,000 mg/kg for total organic contaminants. The reported TPHC concentration in the deeper sample SB08 (9,510 mg/kg) was slightly below the NJDEP total organic cap criterion.

c) **Recommendations**

Based on the results of the supplemental site investigation, ENVIRON proposes to complete 3 soil borings in the vicinity of soil boring SB08 to delineate the elevated TPHC and benzene concentrations. Each soil boring will be completed to the water table. Continuous soil cores will be collected at each soil boring and field screened using a PID. Two soil samples will be collected from each boring and analyzed for TPHCs and VOCs. Soil sampling intervals will be targeted toward zones within and beneath potentially impacted soils. If potentially impacted zones are not identified, sampling intervals will be targeted toward prior sampling intervals (*i.e.*, 0.9 to 1.4 feet bgs for TPHCs and 2.5 to 3.0 feet bgs for VOCs) and the 6-inch interval above the water table.

One downgradient delineation boring will be converted to a temporary monitoring well. The temporary well will be constructed of 1-inch diameter PVC and will be screened across the water table. A ground water sample will be collected from the temporary well and analyzed for VOC+10 and BN+15.

2. Drum Storage Pad (AOC 7)

a) Background

The current drum storage pad was cleaned and inspected by BCM during the site investigation. The drum storage area was found to be intact and no visible cracks or pitting were observed in the concrete. The November 23, 1999 correspondence from NJDEP requested that additional sampling be completed to characterize soil quality in the vicinity of the former drum storage pad at the Site. The former drum storage pad was located immediately east of the current pad at the location of the wastewater pre-treatment plant.

b) Investigation Results

On August 10, 2000, ENVIRON completed two soil borings (SB15 and SB16) adjacent to the former drum storage pad to evaluate potential releases associated with the former drum storage pad. Soil boring locations are depicted on Figure 5 and Plate 1. Due to access restrictions, a 30-pound hammer drill was used to core through the concrete and

collect 2-foot long, 1-inch diameter soil cores to 3 feet bgs at each location. Ground water was not encountered at soil borings SB15 and SB16.

The soil cores were field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed at soil borings SB15 and SB16, and PID readings were consistent with background concentrations. One soil sample was collected from the 1-foot interval below the concrete pad at each boring and analyzed for Priority Pollutant parameters plus a 40-compound forward library search (PP+40).

Analytical results associated with the soil sampling activities at AOC 7 are summarized in Table 5. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 5. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. Reported VOC, pesticide, PCB, and metals concentrations at soil borings SB15 and SB16 were below the most stringent NJDEP soil cleanup criteria. In addition, reported SVOC concentrations at soil boring SB15 did not exceed the most stringent NJDEP soil cleanup criteria. Consistent with soil sampling results from across the Site, several PAHs were detected in the soil sample collected from soil boring SB16 at concentrations exceeding NJDEP is Residential and Non-Residential Direct Contact Soil Cleanup Criteria. However, the reported PAH concentrations are within the range of concentrations typically detected in historic fill material, and are not believed to be associated with historical releases or Site operations.

c) Recommendations

As summarized above, with the exception of PAHs associated with historic fill material at the Site, reported constituent concentrations in soils at AOC 7 are below the most stringent NJDEP soil cleanup criteria. ENVIRON recommends that a deed notice be established to address the PAH concentrations in the historic fill material at the Site. The deed notice would be prepared following completion of the site characterization actions at the property. Based on the results of the supplemental site investigation, ENVIRON recommends that no further actions are warranted with respect to the drum storage pad.

3. Maintenance Shop Drum Storage (AOC 8)

a) Background

In the November 23, 1999 correspondence, NJDEP requested that a sample be collected from the floor seam in the vicinity of the Maintenance Shop drum storage area.

b) Investigation Results

On August 1, 2000, ENVIRON collected one sample (SB17-SS01) from the sediments present within the floor seam near the northern garage bay of the Maintenance Shop in the vicinity of the drum storage area. The sediment sample was collected from a slightly discolored area and analyzed for TPHCs and ethylene glycol. The sample location is depicted on Plate 1.

The analytical results associated with the sampling activities at AOC 8 are summarized in Table 6. The reported TPHC concentration (23,200 mg/kg) exceeds the NJDEP health-based criterion of 10,000 mg/kg for total organic contaminants. Ethylene glycol was not detected in the sample. As the elevated TPHC concentration warranted removal of sediment from within the floor seam, additional characterization (*i.e.* VOC analysis) was not performed.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON recommends that accumulated sediment be removed from the floor seam and transported for appropriate off-site disposal. Upon removal of the sediments, the floor seam will be visually inspected to characterize the integrity of the seam.

E. Wastewater Handling System

1. Wash Bay Drainage System (AOC 9)

a) Background

During NJDEP's September 1998 site inspection, the floor drains associated with the wash bays were filled with liquid and the integrity of the drains could not be assessed.

Results of a subsequent visual integrity inspection completed by BCM described the floor drains to be intact. In the November 23, 1999 correspondence, NJDEP requested that an additional investigation be completed to characterize the floor drains in accordance with the *Technical Requirements for Site Remediation.*

b) Investigation Results

On August 4, 2000, ENVIRON completed three soil borings (SB09, SB10, and SB11) along the northern edge of the Tank Cleaning Building to characterize soil quality and identify potential releases associated with the floor drains. Soil boring locations are depicted on Figure 6 and Plate 1. Soil borings SB10 and SB11 were completed to a depth of 4 feet bgs, and soil boring SB09 was completed to 8 feet bgs. Ground water was encountered at each soil boring location at depths ranging from approximately 2.5 feet bgs to 3.0 feet bgs. As described in the *Supplemental Site Investigation Work Plan*, soil borings were not completed immediately adjacent to the wash bay drains in an effort to maintain the integrity of the surrounding concrete floor.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. Elevated PID readings (5 – 476 ppm) and a petroleum hydrocarbon-type odor were encountered during the field screening at each soil boring. One sample was collected from the 6-inch interval displaying the highest PID reading at each boring location and analyzed for PP+40. In addition, temporary well TW08 was installed at soil boring SB09. As detailed in Section II.I, one ground water sample was collected from TW08 and analyzed for VOC+10.

Analytical results associated with soil sampling activities at AOC 9 are summarized in Table 7. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on Figure 6. Reported VOC, pesticide, and PCB concentrations in the soil samples collected at soil borings SB09, SB10, and SB11 were below the most stringent NJDEP soil cleanup criteria. Bis(2-ethylhexyl)phthalate (88.9 mg/kg) was detected in the soil sample from soil boring SB10 at a concentration above the NJDEP Residential Direct Contact Soil Cleanup Criterion of 49 mg/kg. The reported bis(2-ethylhexyl)phthalate concentration at SB10 was below NJDEP's Non-Residential Direct Contact and Impact to Ground Water Soil Cleanup Criteria (210 and 100 mg/kg,

respectively). No other reported SVOC concentrations at AOC 9 exceed the most stringent NJDEP soil cleanup criteria.

With the exception of the reported arsenic concentration at SB09, none of the reported metals concentrations exceed the most stringent NJDEP soil cleanup criteria. The reported arsenic concentration at SB09 (90.3 mg/kg) exceeds NJDEP's Residential and Non-Residential Direct Contact Soil Cleanup Criteria of 20 mg/kg. Sampling completed during BCM's site investigation also identified arsenic in the historic fill materials at the Site at concentrations above NJDEP's Residential and Non-Residential Direct Contact Criteria. The reported arsenic concentration at SB-9 is within the range of concentrations typically detected in historic fill materials (as defined in the *Technical Requirements for Site Remediation*) and is not believed to be associated with historical releases or Site operations.

Results of the ground water sampling activities performed at temporary well TW08 are discussed in Section II.I. As detailed below, ground water sampling at TW08 identified benzene at a concentration above the New Jersey Class II-A Ground Water Quality Criterion. However, the reported benzene concentration at TW08 was below the benzene concentrations identified at the upgradient property boundary. No other VOCs were detected in the ground water sample collected at TW08.

c) Recommendations

Reported bis(2-ethylhexyl)phthalate concentrations for soil samples SB9 (40.4 mg/kg) and SB11 (14.5 mg/kg) collected adjacent to SB10 and from the approximate interval as SB10-SS01 did not identify SVOCs at concentrations exceeding the most stringent NJDEP soil cleanup criteria. Based on the results of the supplemental site investigation, ENVIRON proposes to complete one boring in the area north of sample location SB10 to delineate the horizontal extent of the elevated phthalate concentration. Additionally, soil boring SB10 will be resampled at a slightly deeper interval to delineate the vertical extent of impacted soils. Continuous soil cores will be collected at each soil boring and screened with a PID to identify potentially impacted zones. One soil sample will be collected from each boring and analyzed for bis(2-ethylhexyl)phthalate. Soil sampling intervals for the soil boring north of SB10 will be targeted toward zones within potentially impacted soils.

If potentially impacted zones are not encountered, soil sampling intervals will be targeted toward the prior sampling interval at SB10 (*i.e.*, 0.5 – 1.0 feet bgs).

2. Wastewater System Settlement Tank (AOC 10)

a) Background

The wastewater settlement tank was visually inspected and photo-documented by BCM during the site investigation. The tank was noted to be lined with steel plating and no evidence of leakage from the steel lining was observed. The settlement tank was constructed in conjunction with the initial tank truck washing activities at the Site and the steel-lining was installed in the settlement tank during 1993. In the November 23, 1999 correspondence, NJDEP requested that sampling be completed to evaluate potential historic releases from the settlement tank.

b) Investigation Results

To further assess potential releases associated with the wastewater system settlement tank, ENVIRON completed three soil borings (SB12, SB13, and SB14) around the perimeter of the settlement tank. Sampling locations are depicted on Figure 6 and Plate 1. Soil borings SB12 and SB13 were completed to approximately 8 feet bgs. Due to access restrictions, soil boring SB14 was completed to 5 feet bgs using a 30-pound hammer drill equipped with a 2-foot long, 1-inch diameter soil corer. Ground water was encountered at approximately 2.2 to 2.5 feet bgs in the vicinity of the wastewater settlement tank.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed at soil borings SB12, SB13, and SB14, and PID readings were consistent with background concentrations. One soil sample was collected from each soil boring and analyzed for PP+40. Sampling intervals were targeted toward the 6-inch interval above the water table.

Analytical results associated with the soil sampling activities at AOC 10 are summarized in Table 7. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on Figure 6. With the exception of the reported

tetrachloroethane (PCE) concentration at soil boring SB14, all of the reported constituent concentrations at AOC 10 were below the most stringent NJDEP soil cleanup criteria. The reported PCE concentration in the soil sample collected at SB14 (1.71 mg/kg) slightly exceeds the NJDEP Impact to Ground Water Soil Cleanup Criterion of 1.0 mg/kg. The reported PCE concentration at SB14 is below NJDEP's Residential and Non-Residential Direct Contact Soil Cleanup Criteria (4 and 6 mg/kg, respectively).

As per the request of the NJDEP, ENVIRON photodocumented the floor drain in the reagent room on November 7, 2000. Copies of photographs documenting the inspection of the reagent room are provided in Appendix C.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON proposes to complete 3 borings to delineate the reported PCE concentration in the vicinity of soil boring SB14. Soil cores will be collected at each soil boring and screened with a PID to identify potentially impacted zones. Two soil samples will be collected from each boring and analyzed for VOC+10. Soil sampling intervals at each soil boring will be targeted toward zones within and beneath potentially impacted soils. If potentially impacted zones are not encountered, soil sampling intervals will be targeted toward the prior sampling interval at soil boring SB14 (*i.e.*, the 6-inch interval above the water table).

To characterize ground water quality in the vicinity of SB14, one downgradient soil boring will be converted to a temporary well. The temporary well will be constructed of 1-inch diameter PVC and screened across the water table. One ground water sample will be collected from the temporary well and analyzed for VOC+10.

F. Areas of Apparently Discolored Soil and Historical Discharges

1. Stained Soil Near Red Storage Area (AOC 11)

a) Background

A small area of stained soil, measuring approximately 8 feet by 15 feet by 4 inches deep, was excavated during November 1998, in conjunction with BCM's site investigation.

Two post-excavation soil samples were collected and each sample was analyzed for TPHCs and Priority Pollutant metals. Reported constituent concentrations did not exceed the most stringent NJDEP soil cleanup criteria. However, as the reported TPHC concentrations exceeded 1,000 mg/kg in the post-excavation samples, NJDEP's November 23, 1999 and June 15, 2000 letters requested that additional samples be collected and analyzed for VOC+10 and Priority Pollutant metals.

b) Investigation Results

On August 1, 2000, ENVIRON completed two soil borings (POSTEX1 and POSTEX2) within the prior excavation area to further evaluate soil quality in the area. Each soil boring was completed to a depth of approximately 1 foot bgs using a decontaminated, stainless steel hand auger. Sample locations are depicted on Figure 7 and Plate 1. Ground water was not encountered during the sample collection activities.

Soil collected at each soil boring location was field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was encountered at soil borings POSTEX1 and POSTEX2, and PID readings were consistent with background concentrations. Observations during the supplemental site investigation did not confirm BCM's report of a sheen on the soils. One soil sample was collected from 0.5 to 1.0 feet bgs at each soil boring and analyzed for VOC+10. Additional soil sampling activities performed by ENVIRON on November 7, 2000 included the collection of one soil sample from soil borings POSTEX1 and POSTEX2 for Priority Pollutant metals analysis. Soil samples were collected from 0.5 to 1.0 feet bgs.

Analytical results associated with the soil sampling activities at AOC 11 are summarized in Table 8. Low levels of toluene and PCE were detected in the soil samples collected at POSTEX1 and POSTEX2, respectively. The reported toluene and PCE concentrations were well below the most stringent NJDEP soil cleanup criteria. No other VOCs were detected in the soil samples collected at POSTEX1 and POSTEX2. Reported lead concentrations for the soil samples collected at POSTEX1 (727 mg/kg) and POSTEX2 (2,060 mg/kg) exceed NJDEP's Residential Direct Contact and Non-Residential Direct Contact Soil Cleanup Criteria of 400 mg/kg and 600 mg/kg, respectively. Additionally, reported copper (772 mg/kg) and zinc (3,400 mg/kg) concentrations in soil sample

POSTEX2-SS01 exceed NJDEP's Residential and Non-Residential Soil Cleanup Criteria. Antimony was detected at a concentration slightly above the Residential Soil Cleanup Criterion of 14 mg/kg in the soil sample collected at POSTEX2. However, the reported metals concentrations are within the range of concentrations typically detected in historic fill.

c) Recommendations

As summarized above, soil sampling in the vicinity of the former excavation identified metals concentrations at levels exceeding NJDEP's corresponding Residential and Non-Residential Direct Contact Soil Cleanup Criteria. However, the reported metals concentrations are within the range of concentrations typically detected in historic fill (as defined in the Historic Fill Database presented in the *Technical Requirements for Site Remediation*) and are not believed to be associated with historical releases or Site operations. Reported VOC concentrations did not exceed NJDEP's most stringent soil cleanup criteria. ENVIRON recommends that no further actions are warranted with respect to soils at AOC 11. Additionally, ENVIRON recommends that a deed notice be established to address the metals concentrations in the historic fill material at the Site. The deed notice will be prepared following completion of the site characterization actions at the property.

2. Staining Near Trailer Staging Area (AOC 12)

a) Background

Five borings were completed at the north end of the Site during BCM's site investigation to evaluate an area of potentially discolored soils that had been identified on a 1974 aerial photograph. Soil samples collected from each soil boring were analyzed for VOC+10 and TPHCs. Because TPHCs were detected, 25% of the soil samples were also analyzed for BN+15, PCBs, and metals. Based on the sampling results, the *Site Investigation Report* proposed to remediate soils in the vicinity of one stained area (Stain-5). NJDEP's November 23, 1999 correspondence requested that additional sampling be completed to delineate VOC and BN compounds detected in soil samples Stain-5 and Stain-6, and to characterize ground water quality.

b) Investigation Results

(1) Initial Delineation Sampling

On July 19, 2000, ENVIRON completed three soil borings (Stain-5A, Stain-5B, and Stain-5C) in the vicinity of sample location Stain-5 and three borings (Stain-6A, Stain-6B, and Stain-6C) in the vicinity of sample location Stain-6 to delineate VOC and BN compounds detected in soil samples collected during BCM's site investigation. Soil boring locations are depicted on Figure 8 and Plate 1. Each soil boring was completed to 8 feet bgs, with the exception of soil borings Stain-5A, Stain5-B, and Stain-6C where Geoprobe refusal was encountered at depths ranging from 4.4 to 5.5 feet bgs. Ground water was encountered at approximately 3.5 feet bgs.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. A slight VOC-like odor and elevated PID readings (582 ppm maximum) were encountered during field screening at soil borings Stain-6C and Stain-5B. A slight sheen was observed on saturated soils at soil boring Stain-5B and elevated PID readings were observed from 1.0 to 5.0 feet bgs. One shallow and one deep soil sample were collected from each soil boring and analyzed for VOC+10 and BN+15. Soil sampling intervals targeted the 6-inch interval displaying the highest PID reading and the 6-inch interval above the water table. In addition, temporary wells were installed at soil borings Stain-5B and Stain-6A. As detailed in Section II.I, ground water samples from each temporary well were analyzed for VOC+10 and BN+15.

Analytical results associated with soil sampling conducted in the vicinity of Stain-5 and Stain-6 are summarized in Table 9. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 8. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. The reported benzene concentrations in soil samples STAIN5A-SS01, STAIN5A-SS02, STAIN5C-SS02, and STAIN6A-SS01 exceed the corresponding NJDEP Impact to Ground Water Soil Cleanup Criterion of 1 mg/kg. The reported benzene concentrations at each sample location were below NJDEP's

Residential and Non-Residential Direct Contact Soil Cleanup Criteria (3 and 13 mg/kg, respectively). PCE was detected in the shallow soil sample collected from soil boring Stain-6B at a concentration of 4.76 mg/kg, which exceeds the NJDEP Impact to Ground Water and Residential Direct Contact Soil Cleanup Criteria (1 mg/kg and 4 mg/kg, respectively). The reported PCE concentration at Stain-6B was below NJDEP's Non-Residential Direct Contact Soil Cleanup Criteria of 6 mg/kg. No other VOCs were detected at concentrations above the most stringent NJDEP soil cleanup criteria. Bis(2-ethylhexyl)phthalate (463 mg/kg) was detected in the shallow soil sample at soil boring Stain-5A (STAIN5A-SS01) at a concentration above the NJDEP's Impact to Ground Water, Residential Direct Contact, and Non-Residential Direct Contact Soil Cleanup Criteria (100, 49, and 210 mg/kg, respectively). In addition, consistent with sampling at locations across the Site, several PAHs were detected in soil samples collected in the vicinity of Stain-5 and Stain-6 at concentrations exceeding the NJDEP residential and non-residential soil cleanup criteria. However, the reported PAH concentrations are within the range of concentrations typically detected in historic fill material, and are not believed to be associated with historical releases or Site operations. No other reported BN concentrations exceed the most stringent NJDEP soil cleanup criteria.

Analytical results associated with ground water sampling at temporary wells Stain-5B and Stain-6A are discussed in Section II.I. As detailed below, reported VOC and BN concentrations in ground water at Stain-5B were below the corresponding New Jersey Class II-A Ground Water Quality Criteria. Reported BN concentrations in ground water at Stain-6A were also below the New Jersey Class II- Ground Water Quality Criteria. Two VOCs (benzene and trichloroethene) were detected in the ground water sample collected from Stain-6A at concentrations above the corresponding Class II-A criteria. However, the reported benzene and trichloroethene (TCE) concentrations in ground water at Stain-6A were below the benzene and TCE concentrations identified in ground water at the upgradient property boundary. None of the other VOC concentrations in ground water at Stain-6A were above the Class II-A criteria.

(2) Supplemental Delineation Sampling

Based on a review of the soil sampling results described above, additional soil borings were completed on August 8, 2000 to further delineate the impacted soils in the vicinity of Stain-5 (soil borings Stain-5D through Stain-5G) and Stain-6 (soil borings Stain-6D through Stain-6G). Soil boring locations are depicted on Figure 8 and Plate 1. Each soil boring was completed to 8 feet bgs and ground water was encountered at depths ranging from approximately 3.0 to 5.5 feet bgs.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. PID readings during field screening at soil borings Stain-5E, Stain-5G, Stain-6D, Stain-6E, Stain-6F and Stain-6G were consistent with background concentrations and no visible or olfactory evidence of contamination was observed during field screening at the delineation soil borings. Slightly elevated PID readings ranging up to 12 ppm were observed throughout the 0 to 4 feet bgs interval at soil borings Stain-5D and Stain5-F. One soil sample was collected from each soil boring and analyzed for VOC+10. In addition, soil samples collected from soil borings Stain-5D and Stain5E were analyzed for bis(2-ethylhexyl)phthalate. Sampling intervals were targeted toward the 6-inch interval displaying the highest PID reading or the adjacent supplemental site investigation sampling interval in which elevated constituent concentrations were identified.

Analytical results associated with the delineation soil sampling in the vicinity of BCM's soil boring locations Stain-5 and Stain-6 are summarized in Table 9. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 8. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. Benzene was detected at concentration of 1.42 mg/kg in the soil sample collected at boring Stain-5G, which exceeds NJDEP's Impact to Ground Water Soil Cleanup Criterion of 1 mg/kg. The reported benzene concentration at Stain-5G was below NJDEP's Residential and Non-Residential Direct Contact Soil Cleanup Criteria (3 and 13 mg/kg, respectively). Reported VOC concentrations for soil samples collected at Stain-5D, Stain-5E, and Stain-5F, as well as Stain-6D through Stain-6G were below

the most stringent NJDEP soil cleanup criteria. Bis(2-ethylhexyl)phthalate was not detected in the soil samples collected at soil borings Stain-5D and Stain-5E.

c) Recommendations

As summarized above, soil sampling at Stain-5G and Stain-6B identified VOCs at concentrations above NJDEP's corresponding Impact to Ground Water Criteria. ENVIRON proposes to install two temporary wells to further characterize ground water quality at AOC 12. The temporary wells will be positioned downgradient of soil borings Stain-5G and Stain-6B. The temporary wells will be constructed of 1-inch diameter PVC and screened across the water table. One ground water sample will be collected from each temporary well and analyzed for VOC+10.

Soil sampling at soil boring Stain-5 during BCM's site investigation identified 1,2-dichloroethane at a concentration greater than NJDEP's corresponding Residential Direct Contact, Non-Residential Direct Contact, and Impact to Ground Water Soil Cleanup Criteria. Subsequent soil sampling conducted during the supplemental site investigation delineated the VOC concentrations above NJDEP's Residential and Non-Residential Criteria to the area in the immediate vicinity of soil boring Stain-5. Soil sampling completed during the supplemental site investigation also identified bis(2-ethylhexyl)phthalate in the vicinity of soil boring Stain-5 at a concentration greater than NJDEP's corresponding Residential Direct Contact, Non-Residential Direct Contact, and Impact to Ground Water Soil Cleanup Criteria. Subsequent soil sampling conducted during the supplemental site investigation delineated the elevated bis(2-ethylhexyl)phthalate concentration to the area in the immediate vicinity of soil boring Stain 5A. ENVIRON recommends that an evaluation of appropriate remedial alternatives to address the impacted soils at Stain-5 be completed following completion of the site characterization actions at the property.

As summarized above, soil sampling in the vicinity of soil boring Stain-6 identified VOCs at concentrations above NJDEP's corresponding Residential Direct Contact and Impact to Ground Water Soil Cleanup Criteria. However, ground water sampling in the area detected VOCs at concentrations consistent with the concentrations detected at the upgradient property boundary. As the reported VOC concentrations in soils did not exceed NJDEP's Residential Direct Contact Soil Criteria and VOC concentrations in ground water

downgradient of the impacted soils were below the Class II-A criteria, ENVIRON recommends that no further actions are warranted with respect to the impact to ground water criteria exceedances. ENVIRON recommends that a deed notice be established to address the VOC, SVOC, and metals concentrations above NJDEP's Residential Direct Contact Criteria in soils near soil boring Stain-6. The deed notice would be prepared following completion of the site characterization actions at the property.

3. Incident Spill Report (AOC 13)

a) Background

In June 1999, approximately 30 gallons of an oil-like substance were released in the parking area at the Site. In a letter dated June 15, 1999, QSI included a confirmation report indicating that the impacted soils were excavated. According to QSI personnel, the excavation was completed to a depth of approximately 1.5 feet bgs. However, as there is no indication of post-excavation sampling activities, NJDEP requested in the November 23, 1999 correspondence that post-excavation sample be collected from the discharge area.

b) Investigation Results

On July 19, 2000, ENVIRON completed three soil borings (SB18, SB19, and SB20) to characterize the remaining soil quality at the reported spill location. Soil boring locations are depicted on Figure 9 and Plate 1. Each soil boring was completed to a depth of 4 feet bgs. Ground water was not encountered during the sampling activities.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. A slight volatile-like odor was noted during field inspection of soil cores at each boring location and low PID readings (2 ppm maximum) were encountered throughout the 2.5 to 3.0 feet bgs interval at SB18. PID readings at soil borings SB19 and SB20 were consistent with background concentrations. One soil sample was collected from each boring and analyzed to TPHCs. Soil sampling intervals targeted the former excavation sidewalls (SB19 and SB20) and the base of the former excavation (SB18). The soil sample which contained the highest TPHC concentration (SB18-SS01) was also analyzed for VOC+10 and BN+15.

Analytical results associated with the soil sampling activities at AOC 13 are summarized in Table 10. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 9. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. The reported TPHC concentration at each soil boring were below the NJDEP health-based criterion of 10,000 mg/kg for total organic contaminants. Reported concentrations of *cis*-1,2-dichloroethene (15.5 mg/kg) and TCE (4.89 mg/kg) in the soil sample collected at soil boring SB18 were above the corresponding NJDEP Impact to Ground Water Soil Cleanup Criteria (1 mg/kg for each compound). The reported *cis*-1,2-dichloroethene and TCE concentrations at SB18 did not exceed NJDEP's corresponding Residential or Non-Residential Direct Contact Soil Cleanup Criteria. In addition, none of the other reported VOC concentrations at SB18 were above the most stringent NJDEP soil cleanup criteria. Consistent with soil sampling results from across the Site, several PAHs were detected in the soil sample collected from soil boring SB18 at concentrations exceeding NJDEP's Residential and Non-Residential Direct Contact Soil Cleanup Criteria. However, the reported PAH concentrations are within the range of concentrations typically detected in historic fill material, and are not believed to be associated with historical releases or Site operations.

On August 10, 2000, ENVIRON completed three additional borings (SB21, SB22, and SB23) in the vicinity of the former excavation to delineate the elevated VOC concentrations detected in soil sample SB18-SS01. Soil boring locations are depicted on Figure 9 and Plate 1. Soil boring SB22 was completed to 8 feet bgs, however, soil borings SB21 and SB23 were completed to 5 and 3 feet bgs, respectively, due to Geoprobe refusal. Ground water was detected at soil borings SB21 (3.7 feet bgs) and SB22 (5.5 feet bgs).

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed at soil borings SB21, SB22, and SB23 and PID readings during field screening at these locations were consistent with background concentrations. One soil sample was collected from each soil boring and analyzed for VOC+10. Sampling intervals targeted the adjacent supplemental site investigation sampling interval in which elevated VOC concentrations were identified (*i.e.*, 1.5 to 2.0 feet bgs at SB18). As

summarized in Table 10, reported VOC concentrations in the soil samples collected at soil borings SB21 and SB22 were below the most stringent NJDEP soil cleanup criteria. VOCs were not detected in the soil sample collected at soil boring SB23.

c) Recommendations

Based on the results of the supplemental site investigation, ENVIRON proposes to install one temporary well to characterize ground water quality immediately downgradient of the elevated VOC concentrations in soils at soil boring SB18. The temporary well will be positioned downgradient of soil boring SB18. The temporary well will be constructed of 1-inch diameter PVC and screened across the water table. One ground water sample will be collected from the temporary well and analyzed for VOC+10. Recommendations for additional actions at the reported spill area will be developed, as appropriate, based on the ground water sampling results.

ENVIRON recommends that a deed notice be established to address the PAH concentrations in the historic fill material at the Site. The deed notice would be prepared following completion of the site characterization actions at the property.

G. Other Areas

1. Maintenance Building Concrete Vault (AOC 14)

a) Background

During November 1998, BCM collected one soil sample (Grate-1) from below a metal grate in the Maintenance Building. The metal grate covers a concrete vault where the municipal water main enters the Site. The reported arsenic concentration in the soil sample was above the NJDEP Residential and Non-Residential Soil Cleanup Criteria. BCM's *Site Investigation Results Report* proposed to remove all accumulated sediments from the concrete vault. In addition to the cleaning activities, NJDEP's November 23, 1999 correspondence requested that soil samples be collected from the base of the vault.

b) Investigation Results

On August 2, 2000 ENVIRON attempted to visually inspect and evaluate the integrity of the vault. Prior to dewatering the concrete vault, it was observed that the water level within the vault was approximately 0.8 feet below the surface of the concrete floor in the Maintenance Building. During dewatering activities, it was noted that there was water entering the vault along the western vault wall, particularly in the vicinity of the southwest corner of the vault. The relatively rapid influx of water (estimated to be approximately 35 gpm) along the western portion of the concrete vault prevented completion of the visual inspection and sediment removal. Facility personnel reported that the water flowing into the concrete vault is associated with a leaking water line between the western wall of the Maintenance Building and Doremus Avenue. Due to the rapid influx of water into the vault, no cleaning activities could be completed during the supplemental site investigation.

The rapid rate of water infiltration, along with ground water sampling results that indicate the presence of chlorinated drinking water breakdown products (see Section II.I.1) suggests that the source of the infiltrating water is likely a leaking water supply main or lateral. QDI contacted the City of Newark Water Department and requested an inspection of the water supply pipelines in the area. QDI is continuing to attempt to resolve the problem of water influx into the vault.

c) Recommendations

Sampling completed during BCM's site investigation identified arsenic in the sediments at the bottom of the concrete vault at a concentration above NJDEP's Residential and Non-Residential Direct Contact Criteria. However, sampling completed during the site investigation and supplemental site investigation also identified arsenic in the historic fill materials at the Site at concentrations above NJDEP's Residential and Non-Residential Direct Contact Criteria. The reported arsenic concentration in the vault sediments is within the range of concentrations typically detected in historic fill materials (as defined in the *Technical Requirements for Site Remediation*) and within the range of arsenic concentrations detected in the historic fill material at the Site. As such, the reported arsenic concentration in the vault sediments is believed to be unrelated to

historical releases or Site operations. The sediments are suspected to have been transported into the vault via the infiltrating water.

QDI has contacted the Newark Water Authority regarding the suspected leaking water line. However, no repairs have been performed to date. ENVIRON proposes to remove the sediments from the vault following further evaluation of the suspected water leak by the municipal authority. As the arsenic concentrations are believed to be related to historic fill materials surrounding the vault, ENVIRON recommends that no further sampling is warranted with respect to the reported arsenic concentration.

2. Unused Building (AOC 15)

a) Background

Based on a review of Sanborn fire insurance maps for the Site, an unused building at the northern end of the Site was formerly used for an office in the 1950s and was vacant by 1973. No indication was given on the Sanborn maps as to a source of heat for the building. NJDEP requested that an investigation be completed to identify the former heat source for the building and identify any potential areas of environmental concern.

b) Investigation Results

On September 11, 2000, ENVIRON inspected the unused building to identify the former heat source and identify any potential areas of environmental concern. Several overhead electric lines were observed entering the west side of the building from Doremus Avenue. Additionally, an abandoned electric utility meter was observed on the south side of the building. Two, approximate 1-inch diameter abandoned lines, were observed protruding through the concrete foundation on the southern side of the building. The lines could not be traced inside of the building as the lines appeared to have been removed, with the exception of the portions set in concrete. Markings on a connection associated with one of the lines indicates that these lines may have been associated with former gas service. No potential utilities were observed along the northern and eastern portions of the unused building. The inspection did not identify any indication of former fuel oil storage

tanks, such as fill ports or vent pipes. In addition, the inspection did not identify any potential areas of environmental concern at the unused building.

c) Recommendations

Based on the results of the visual inspection, ENVIRON recommends that no further actions are warranted with respect to the unused building at the northwestern portion of the Site.

H. Historic Fill Material

1. Background

A total of 10 soil borings were completed during BCM's site investigation to characterize the quality of the historic fill material at the Site. Samples collected from each soil boring were analyzed for TPHCs and Priority Pollutant metals. Samples from two soil borings (Fill-6 and Fill-7) were also analyzed for PAHs and PCBs. Samples displaying elevated PID readings were analyzed for VOC+10.

VOCs were detected at concentrations above NJDEP's Impact to Ground Water Criteria Soil Cleanup Criteria in soil samples collected at soil borings Fill-5, Fill-7, and Strmfill-8. Reported VOC concentrations at Strmfill-8 also exceeded NJDEP's Residential and Non-Residential Direct Contact Criteria. In addition, the reported TPHC concentration at Fill-7 was above NJDEP's total organic cap criteria. NJDEP rejected the BN and PCB data based on QA/QC issues. NJDEP's November 23, 1999 correspondence requested that additional soil sampling be completed to delineate the elevated VOC and TPHC concentrations and to provide valid PAH and PCB sampling data. The following sections detail results of the additional sampling activities.

2. Sample Location Fill-5

a) Investigation Results

On July 18, 2000, ENVIRON completed three soil borings (Fill-5A, Fill-5B, and Fill-5C) in the vicinity of soil boring Fill-5 to delineate the VOC concentrations detected

during BCM's site investigation. The soil boring locations are depicted on Figure 10 and Plate 1. Soil borings Fill-5A and Fill-5C were completed to a depth of 8 feet bgs and soil boring Fill-5B was completed to 12.0 feet bgs. Ground water was encountered at approximately 3.5 feet bgs.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed at soil borings Fill-5A and Fill-5C, and PID readings were consistent with background concentrations. A slight petroleum hydrocarbon-like odor and slightly elevated PID readings (3 – 27 ppm) were reported during field screening of soils below the water table (approximately 4 feet bgs) at soil boring Fill-5B. A sheen was observed on saturated soils from approximately 4 to 5 feet bgs at Fill-5B. As potentially impacted zones were not encountered at soil borings Fill-5A and Fill-5C, and ground water was encountered at approximately 3.5 feet bgs, one soil sample was collected from the approximate 6-inch interval above the water table from borings Fill-5A and Fill-5C and analyzed for VOC+10. Shallow (3.5 to 4.0 feet bgs) and deep (8.5 to 9.0 feet bgs) soil samples were collected at soil boring Fill-5B and analyzed for VOC+10. Temporary wells were installed at soil borings Fill-5B and Fill-5C to characterize ground water quality. As detailed in Section II.I, ground water samples were collected from each temporary well and analyzed for VOC+10.

Analytical results associated with the delineation soil sampling at Fill-5 are summarized in Table 11. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on Figure 10. Trace concentrations of several VOCs were detected in the soil sample collected at Fill-5A and Fill-5B. All reported VOC concentrations were below the most stringent NJDEP soil cleanup criteria. VOCs were not detected in the soil sample collected from boring Fill-5C.

Results of the ground water sampling activities conducted at Fill-5B and Fill-5C are discussed in Section II.I. As detailed below, ground water sampling at Fill-5B and Fill-5C identified benzene at concentrations above the New Jersey Class II-A Ground Water Quality Criterion. However, the reported benzene concentrations at Fill-5B and Fill-5C were below the benzene concentrations identified at the upgradient property boundary. No other reported VOC concentrations at Fill-5B or Fill-5C were above the corresponding

New Jersey Class-IIA criteria.

b) Recommendations

Soil sampling completed during the supplemental site investigation has delineated the extent of VOCs identified in soils at concentrations above NJDEP's Impact to Ground Water Criteria. In addition, ground water sampling downgradient of the Fill-5 area detected VOCs at concentrations below concentrations detected at the upgradient property boundary. As the reported VOC concentrations in soils did not exceed NJDEP's Residential Direct Contact Soil Cleanup Criteria and VOC concentrations in ground water downgradient of the impacted soils were below the Class II-A criteria, ENVIRON recommends that no further actions are warranted with respect to the impact to ground water criteria exceedances at soil boring Fill-5.

Although delineation soil sampling conducted in the vicinity of sample location Fill-5 did not identify constituent concentrations above the most stringent soil cleanup criteria, a slight sheen was observed on soils from approximately 3.5 to 4.0 feet bgs at soil boring Fill-5B. ENVIRON proposes to complete three soil borings in the vicinity of Fill-5B to delineate the extent of free-phase hydrocarbons. Continuous soil cores will be collected at each soil boring and field screened using a PID to identify potentially impacted zones. One soil sample will be collected from each soil boring and analyzed for TPHCs. One soil sample will also be collected at prior soil boring Fill-5B and analyzed for TPHCs. Sampling intervals at each soil boring will be targeted toward impacted soils or toward the prior sampling interval at Fill-5B if potentially impacted zones are not identified.

3. Sample Location Fill-6

a) Investigation Results

On August 3, 2000, ENVIRON collected an additional soil sample at BCM's soil boring Fill-6 to provide valid PAH and PCB sampling data. The sample location is depicted on Plate 1. Soil boring Fill-6 was completed to a depth of 7 feet bgs and ground water was encountered at approximately 3.4 feet bgs.

Continuous soil cores were collected at the soil boring location and field screened using a PID to identify potentially impacted zones. No visual or olfactory evidence of contamination was observed at soil boring Fill-6. Low PID readings (23 ppm maximum) were encountered from 1.0 to 7.0 feet bgs. Soil sample FILL6-SS01 was collected from BCM's prior sampling interval (6.0 to 6.5 feet bgs) and analyzed for PAHs and PCBs.

Analytical results associated with the additional soil sample collected at Fill-6 are summarized in Table 11. PCBs were not detected in the soil sample collected from Fill-6. Consistent with sampling results from locations across the Site, several PAHs were detected at concentrations exceeding the corresponding NJDEP Residential and Non-Residential Direct Contact Soil Cleanup Criteria. However, the reported PAH concentrations are within the range of concentrations typically detected in historic fill material and are not believed to be associated with historical releases or Site operations.

b) Recommendations

ENVIRON recommends that a deed notice be established to address the PAH concentrations in the historic fill material at the Site. The deed notice would be prepared following completion of the site characterization actions at the property.

4. Sample Location Fill-7

a) Investigation Results

(1) Initial Delineation Sampling

On July 18, 2000, ENVIRON completed three soil borings (Fill-7A, Fill-7B, and Fill-7C) in the vicinity of soil boring Fill-7 to delineate the elevated VOC and TPHC concentrations identified during BCM's site investigation. One soil boring was also completed at the location of prior boring Fill-7 to provide valid PAH and PCB sampling data. Sample locations are depicted on Figure 10 and Plate 1. Each soil boring was completed to a depth of 8 feet bgs and ground water was encountered at approximately 6.0 to 6.5 feet bgs.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed at soil borings Fill-7, Fill-7A, Fill-7B, and Fill-7C. Slightly elevated PID readings (42 ppm maximum) were recorded between 0 to 2 feet bgs at Fill-7A and Fill-7C. Low PID readings (18 ppm maximum) were recorded from 4.0 to 8.0 feet bgs at Fill-7B. PID field screening at soil boring Fill-7 did not identify concentrations above background levels. Shallow and deep soil samples were collected from soil borings Fill-7A, Fill-7B, and Fill-7C and analyzed for VOC+10 and TPHCs. Sampling intervals at the delineation soil borings were targeted toward the 6-inch interval displaying the highest PID reading and the 6-inch interval above the water table. One soil sample was also collected from BCM's prior sampling interval at soil boring Fill-7 (7.0 to 8.0 feet bgs) and analyzed for PAHs and PCBs. A temporary well was installed at soil boring Fill-7C to characterize ground water quality.

Analytical results associated with the soil sampling activities at Fill-7 are summarized in Table 11. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 10. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. The reported TPHC concentration at Fill-7A (11,800 mg/kg) exceeds NJDEP's health-based criterion of 10,000 mg/kg for total organic contaminants. Reported TPHC concentrations at Fill-7B and Fill-7C were below NJDEP's total organic cap criterion. Benzene (1.06 mg/kg) and xylenes (170 mg/kg) were detected at concentrations exceeding NJDEP's corresponding Impact to Ground Water Soil Cleanup Criteria in the shallow soil samples collected at Fill-7B and Fill-7C, respectively. The benzene and xylene concentrations did not exceed NJDEP's corresponding Residential or Non-Residential Direct Contact Soil Cleanup Criteria. No other reported VOC concentrations at Fill-7A, Fill-7B, or Fill-7C exceed the most stringent NJDEP soil cleanup criterion.

The reported concentrations of Aroclor-1248 (0.892 mg/kg) and Aroclor-1260 (3.55 mg/kg) in the soil sample collected at soil boring Fill-7 exceed NJDEP's Residential Direct Contact Criterion of 0.49 mg/kg for PCBs. The reported Aroclor-

1260 concentration at Fill-7 also exceeds the NJDEP Non-Residential Soil Cleanup Criterion of 2 mg/kg for PCBs. The reported PCB concentrations did not exceed NJDEP's Impact to Ground Water Soil Cleanup Criterion (50 mg/kg). Consistent with soil sampling results from locations across the Site, several PAHs were detected in the sample collected from soil boring Fill-7 at concentrations exceeding NJDEP's Residential and Non-Residential Direct Contact Soil Cleanup Criteria. However, the reported PAH concentrations are within the range of concentrations typically detected in historic fill material and are not believed to be associated with historical releases or Site operations.

Results of the ground water sampling activities conducted at temporary well Fill-7C are discussed in Section II.I. As detailed below, ground water sampling at Fill-7C did not detect VOC concentrations above the corresponding New Jersey Class II-A Ground Water Quality Criteria.

(2) Supplemental Delineation Sampling

Based on the soil sampling results described above, ENVIRON completed six additional soil borings (Fill-7D through Fill-7I) on August 8, 2000 to delineate the elevated VOC concentrations detected in shallow soils at soil borings Fill-7B and Fill-7C and the elevated TPHC concentration detected in the shallow soil sample collected at soil boring Fill-7A. In addition, soil borings Fill-7A, Fill-7B, and Fill-7C were re-sampled at deeper intervals to delineate the elevated PCB concentration detected at soil boring Fill-7. Sample locations are depicted on Figure 10 and Plate 1. Each soil boring was completed to a depth of 8 feet bgs, with the exception of Fill-7F, Fill-7G, and Fill-7H which could not be advanced to 8 feet bgs due to Geoprobe refusal. Ground water was encountered at depths ranging from 3.5 feet bgs (Fill-7H) to 7.5 feet bgs (Fill-7E).

Slightly elevated PID readings (maximum 46 ppm) were encountered during field screening at Fill-7D, Fill-7G, and Fill-7H. A strong, volatile-like odor was noted from 3.5 to 4.0 feet bgs at soil boring Fill-7H. No visible or olfactory evidence of contamination was observed at soil borings Fill-7D, Fill-7E, Fill-7F, Fill-7G, and Fill-7I. Soil samples collected from soil borings Fill-7D and Fill-7E were analyzed for TPHCs. Soil samples collected from soil borings Fill-7F through Fill-7I were analyzed for VOC+10. Sampling

intervals at the delineation soil borings were targeted toward adjacent supplemental site investigation sampling intervals in which elevated constituent concentrations were identified, or the 6-inch interval in which the highest PID reading was observed.

Analytical results associated with the additional delineation soil sampling at Fill-7 are summarized in Table 11. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria (with the exception of PAHs) are listed on Figure 10. A summary of the PAH concentrations in the historic fill material at the Site is depicted on Plate 2. Reported TPHC concentrations in the soil samples collected at Fill-7D and Fill-7E did not exceed NJDEP's total organic cap criterion of 10,000 mg/kg. In addition, VOCs were not detected in the soil samples collected from borings Fill-7F through Fill-7I. Trace concentrations of Aroclor-1260 were detected in the delineation soil samples collected at soil borings Fill-7A and Fill-7C. The reported Aroclor-1260 concentrations were well below the most stringent NJDEP soil cleanup criteria for PCBs. PCBs were not detected in the delineation soil sample collected at soil boring Fill-7B.

b) Recommendations

Reported VOC concentrations in the shallow soil samples collected from Fill-7B and Fill-7C exceed NJDEP's Impact to Ground Water Soil Cleanup Criteria. However, reported VOC concentrations in the ground water sample collected from downgradient temporary well Fill-7C did not exceed a New Jersey Class II-A Ground Water Quality Criteria. As the reported VOC concentrations in soils did not exceed NJDEP's Residential Direct Contact Soil Cleanup Criteria and VOC concentrations in ground water downgradient of the impacted soils were below the Class II-A criteria, ENVIRON recommends that no further actions are warranted with respect to VOCs in soils in the vicinity of Fill-7.

The reported PCB concentrations in the soil sample collected from soil boring Fill-7 exceed NJDEP's Non-Residential Soil Cleanup Criterion and the reported TPHC concentrations at soil borings Fill-7 and Fill-7A exceed NJDEP's total organic cap criteria. ENVIRON recommends that an evaluation of appropriate remedial alternatives to address the PCB and TPHC impacted soils at Fill-7 be completed following completion of the site characterization actions at the property. ENVIRON also recommends that a deed notice be

established to address the PAH concentrations in the historic fill material at the Site. The deed notice would be prepared following completion of the site characterization actions at the property.

5. Sample Location Strmfill-8

a) Investigation Results

On July 18, 2000, ENVIRON completed three soil borings (Strmfill-8A, Strmfill-8B, and Strmfill-8C) in the vicinity of prior sample location Strmfill-8 to delineate VOC concentrations detected in soils during BCM's site investigation. Sample locations are depicted on Figure 10 and Plate 1. Soil borings Strmfill-8A and Strmfill-8C were completed to a depth of 8 feet bgs. Soil boring Strmfill-8B was completed to 7 feet bgs due to Geoprobe refusal. Ground water was encountered at depths ranging from 4 to 6 feet bgs.

Continuous soil cores were collected at each soil boring location and field screened using a PID to identify potentially impacted zones. No visible or olfactory evidence of contamination was observed. Low PID readings (8.4 ppm maximum) were encountered during field screening of each soil core. One shallow and one deep soil sample were collected from each delineation soil boring and analyzed for VOC+10. Sampling intervals at the delineation soil borings were targeted toward the 6-inch interval displaying the highest PID reading and the 6-inch interval above the water table. In addition, a temporary well was installed at soil boring Strmfill-8C to characterize ground water quality downgradient of the impacted soils. A ground water sample collected at Strmfill-8C was analyzed for VOC+10.

Analytical results associated with the delineation soil sampling in the vicinity of Strmfill-8 are summarized in Table 11. In addition, constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on Figure 10. Trace levels of several VOCs were detected in the shallow soil samples collected at soil borings Strmfill-8A, Strmfill-8B, and Strmfill-8C and the deep soil sample collected at Strmfill-8B. All reported VOC concentrations were well below the most stringent NJDEP soil

cleanup criteria. VOCs were not detected in the deep soil samples collected at soil borings Strmfill-8A and Strmfill-8C.

Results of the ground water sampling conducted at temporary well Strmfill-8C are discussed in Section II.I. As detailed below, ground water sampling at Strmfill-8C did not detect VOCs.

b) Recommendations

Sampling completed during BCM's site investigation identified VOCs in soils at Strmfill-8 at concentrations above NJDEP's Impact to Ground Water, Residential Direct Contact and Non-Residential Direct Contact Soil Cleanup Criteria. Sampling completed during the supplemental site investigation delineated the extent of the VOC-impacted soils to the area in the immediate vicinity of soil boring Strmfill-8. In addition, sampling downgradient of the VOC-impacted soils did not detect VOCs in ground water. ENVIRON recommends that an evaluation of appropriate remedial alternatives to address the VOC-impacted soils at Strmfill-8 be completed following completion of the site characterization actions at the property.

I. Ground Water Quality Characterization

1. Investigation Results

As soil sampling completed during BCM's site investigation identified constituents at concentrations above the corresponding NJDEP Impact to Ground Water Soil Cleanup Criteria, NJDEP's November 23, 1999 correspondence requested that a ground water investigation be completed at the Site. ENVIRON installed temporary monitoring wells at 21 locations (TW01 through TW15, Stain-5B, Stain-6A, Fill-5B, Fill-5C, Fill-7C, and Strmfill-8C) during the supplemental site investigation to characterize ground water quality across the Site and to evaluate ground water quality immediately downgradient of the soils containing VOCs at concentrations above NJDEP's impact to ground water criteria. Ground water sampling locations are depicted on Plate 1.

The temporary wells were constructed using 1-inch diameter PVC and were screened across the water table. A small volume of water (less than 0.5 gal.) was purged from each

temporary well prior to ground water sample collection. Ground water samples were collected from each temporary monitoring well using dedicated, disposable polyethylene tubing fitted with a check valve and analyzed for VOC+10. Ground water samples collected from temporary monitoring wells Stain-5B and Stain-6A were also analyzed for BN+15.

Analytical results associated with the ground water sampling activities are summarized in Table 12 and on Plate 3. Ground water sampling at the upgradient property boundary (temporary monitoring wells TW01, TW02, and TW03) identified several VOCs at concentrations above the corresponding New Jersey Class II-A Ground Water Quality Criteria. The identified compounds at the upgradient property boundary consisted principally of chlorinated hydrocarbons (TCE, PCE, and vinyl chloride) and benzene. Ground water sampling at the southwestern property corner (TW01) also identified two trihalomethanes (chloroform and bromodichloroethane). Trihalomethanes are commonly identified as breakdown products from the chlorination of drinking water. As noted above, results of the activities completed at a near-by vault in the Maintenance Building suggest that the municipal water supply line along Doremus Avenue may be leaking.

As noted above, six of the temporary monitoring wells (Stain-5B, Stain-6A, Fill-5B, Fill-5C, Fill-7C, and Strmfill-8C) were installed to evaluate ground water quality immediately downgradient of the soils containing VOCs at concentrations above NJDEP's Impact to Ground Water Criteria. Reported VOC concentrations in the ground water samples collected at Stain-5B and Fill-7C were all below the corresponding New Jersey Class II-A Ground Water Quality Criteria. VOCs were not detected in the ground water sample collected at Strmfill-8C. Reported benzene concentrations in the ground water samples collected at Stain-6A, Fill-5B, Fill-5C (12.9 µg/L, maximum) were above the corresponding Class II-A criterion. However, the reported benzene concentrations in the ground water samples collected at Stain-6A, Fill-5B, Fill-5C were below the reported benzene concentrations in ground water at the upgradient property boundary. All other reported VOC concentrations in ground water at Fill-5B and Fill-5C were below the corresponding Class II-A criteria. TCE was detected in the duplicate ground water sample collected at Stain-6A at a concentration slightly above the Class II-A criterion. However, TCE was not detected in the primary ground water sample from Stain-6A and the reported concentration in the duplicate sample from Stain-6A was lower than the reported TCE concentration in ground water at the upgradient property boundary.

Ground water samples collected at Stain-5B and Stain-6A were also analyzed for BN+15. Trace concentrations of several BNs were detected in the ground water sample collected at Stain-5B. All the reported BN concentrations were well below the corresponding New Jersey Class II-A Ground Water Quality Criteria. BNs were not detected in the primary sample or duplicate ground water sample collected at Stain-6A.

The remaining 15 temporary monitoring wells were positioned at locations across the southwestern portion of the Site. VOCs were not detected between the Tank Cleaning Building and the Maintenance Building (TW04) and the reported VOC concentrations at points near the Passaic River (TW10 and TW14) were below the corresponding New Jersey Class II-A Ground Water Quality Criteria. Reported benzene concentrations in the ground water samples collected at TW08, TW11, and TW15 (15 µg/L, maximum) were above the corresponding Class II-A criterion. However, the reported benzene concentrations at these locations were below the reported benzene concentrations at the upgradient property boundary. All other reported VOC concentrations in ground water at TW08, TW11, and TW15 were below the corresponding Class II-A criteria. Although several VOCs were detected at TW07 at concentrations above the Class II-A criteria, the reported concentrations were also generally consistent with background; the reported TCE concentration at TW07 was slightly above the upgradient concentration (3.2 and 2.2 µg/L, respectively). As presented in Table 12, reported VOC concentrations at five temporary monitoring wells near the southern property boundary (*i.e.*, TW05, TW06, TW09, TW12, and TW13) were above the New Jersey Class II-A criteria and above the VOC concentrations identified at the upgradient property boundary.

2. Recommendations

As summarized above, ground water sampling has detected VOC concentrations at the upgradient property boundary at concentrations above the New Jersey Class II-A Ground Water Quality Criteria. Although ground water sampling at the northern and central portions of the Site has identified VOC concentrations above the Class II-A criteria, the reported VOC concentrations at these areas were below the upgradient concentrations. Ground water sampling near the southern property boundary has identified several VOCs at concentrations above the Class II-A criteria and above the elevated upgradient concentrations. ENVIRON recommends that additional actions be completed to characterize ground water quality and

evaluate ground water flow patterns at the Site. The proposed actions would include the installation of five shallow monitoring wells and the collection of two rounds of ground water samples from each monitoring well. Each ground water sample would be analyzed for VOC+10. Proposed monitoring well locations are depicted on Plate 3.

J. Quality Assurance/Quality Control

During the supplemental site investigation, rinsate blank and trip blank samples were submitted to the analytical laboratory to characterize equipment decontamination procedures and evaluate potential cross-contamination during sample container storage and shipment. Results of the QA/QC sample analyses are summarized in Table 13. Laboratory analyses did not identify any potential cross-contamination issues associated with equipment decontamination or sample storage and shipment.

Laboratory data packages were reviewed by ENVIRON following completion of the sample analyses. Based on ENVIRON's review, the data packages meet the requirements for the reduced laboratory deliverable and no significant issues related to data quality or reliability were identified.

III. CONCLUSIONS AND RECOMMENDATIONS

Site investigation activities have been completed to characterize 15 AOCs and evaluate ground water quality. Based on the supplemental site investigation results detailed in Section II, ENVIRON proposes the following: (1) no further actions are warranted with respect to six AOCs at the Site; (2) additional sampling activities are required to further characterize seven AOCs and ground water quality; and (3) limited removal actions are appropriate at this time for one AOC. The proposed status of each AOC is summarized in Table 14. The proposed additional sampling activities and a limited removal action at each applicable AOC, previously detailed in Section II, are briefly summarized below:

- Former No. 4 Fuel Oil AST (AOC 1): Delineation of TPHC-impacted soils and free-phase hydrocarbons. Ground water sample collection to characterize ground water quality downgradient of impacted area.

- Waste Oil AST (AOC 2): Delineation of elevated TPHC-impacted soils at soil boring SB30.

- Former Gasoline USTs – South End of Site (AOC 3): Authentication of methylene chloride concentrations identified by BCM in soils at and in the vicinity of AOC 3.

- Pre-Solv Filling Area (AOC 6): Delineation of the TPHC and VOC-impacted soils and ground water sample collection to evaluate TPHC and impact to ground water exceedances.

- Maintenance Shop Drum Storage (AOC 8): Removal of accumulated sediments from the floor seam and visual inspection of the floor seam integrity.

- Wash Bay Drainage System (AOC 9): Delineation of elevated bis(2-ethylhexyl)phthalate concentration detected in soils at soil boring SB-10.

- Wastewater System Settlement Tank (AOC 10): Delineation of VOC-impacted soils and ground water sample collection to evaluate impact to ground water criteria exceedance at soil boring SB-14.

- Staining Near Trailer Staging Area (AOC 12): Additional ground water sample collection to evaluate impact to ground water criteria exceedances near soil borings Stain-5 and Stain-6.

- Incident Spill Report (AOC 13): Ground water sample collection to evaluate impact to ground water exceedance at soil boring SB-18.

- Ground Water Quality: Monitoring well installation and additional ground water sample collection.

Additional future actions will be developed based on the final findings of the site characterization activities. These future actions will include removal of sediments from the concrete vault in the Maintenance Building, establishment of a deed notice to address the elevated PAH and metals concentrations in the historic fill material beneath the Site, and an evaluation of appropriate remedial alternatives to address impacted soils at the Site, including soils in the vicinity of soil borings Stain-5A, Fill-7, and Strmfill-8.

IV. REFERENCES

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TABLES

TABLE 1
Summary of Soil Sampling Results - AOC 1, AOC 1A, and AOC 2 (Aboveground Storage Tanks)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	GP1A	GP1A	GP1B	GP1B	GP1C	GP1C	GP1D	GP1E	GP1E	GP1F	GP1G	GP1H	GP1I	SB01
ENVIRON Sample ID	GP1A-SS01	GP1A-SS02	GP1B-SS01	GP1B-SS02	GP1C-SS01	GP1C-SS02	GP1D-SS01	GP1E-SS01	GP1E-SS02	GP1F-SS01	GP1G-SS01	GP1H-SS01	GP1I-SS01	SB01-SS01
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	4.5 - 5	6.7 - 7.2	0.5 - 1	6 - 6.5	4.5 - 5	7.5 - 8	4.5 - 5	7.5 - 8	9.5 - 10	4.5 - 5	7.5 - 8	7.5 - 8	7.5 - 8	2.5 - 3
Collection Date	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/19/2000	07/19/2000	07/19/2000	08/10/2000	08/10/2000	08/10/2000	08/10/2000	08/07/2000
Comments														
Volatile Organic Compounds														
Ethyl Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds														
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	0.0796 (0.076)	17.4 (1.9)	5.71 (0.79)	0.309 (0.076)	7.46 (0.16)	0.65 (0.078)	NA	NA	NA	NA	0.138J (0.44)
Acenaphthylene	NA	NA	NA	0.252 (0.076)	ND (0.38)	ND (0.079)	0.332 (0.076)	ND (0.16)	ND (0.078)	NA	NA	NA	NA	0.145J (0.44)
Anthracene	NA	NA	NA	0.532 (0.076)	ND (0.38)	ND (0.079)	1 (0.076)	2.41 (0.16)	0.25 (0.078)	NA	NA	NA	NA	0.469 (0.44)
Benzo(a)anthracene	NA	NA	NA	0.714 (0.076)	2.27 (1.9)	0.522J (0.79)	2.87 (0.076)	1.62 (0.16)	0.0925 (0.078)	NA	NA	NA	NA	0.712 (0.44)
Benzo(a)pyrene	NA	NA	NA	1.06 (0.076)	2.21 (1.9)	0.506J (0.79)	2.54 (0.076)	0.877 (0.16)	0.0818 (0.078)	NA	NA	NA	NA	0.941 (0.44)
Benzo(b)fluoranthene	NA	NA	NA	1.08 (0.076)	1.28J (1.9)	0.319J (0.79)	2.57 (0.076)	1.34 (0.16)	0.0481J (0.078)	NA	NA	NA	NA	0.78 (0.44)
Benzo(g,h,i)perylene	NA	NA	NA	0.916 (0.076)	ND (0.38)	ND (0.079)	1.29 (0.076)	1.11 (0.16)	0.0408J (0.078)	NA	NA	NA	NA	1.42 (0.44)
Benzo(k)fluoranthene	NA	NA	NA	0.882 (0.076)	1.3J (1.9)	0.326J (0.79)	1.7 (0.076)	0.836 (0.16)	0.0323J (0.078)	NA	NA	NA	NA	0.574 (0.44)
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	0.819 (0.076)	2.22 (1.9)	0.58J (0.79)	2.78 (0.076)	1.57 (0.16)	0.0981 (0.078)	NA	NA	NA	NA	1.04 (0.44)
Dibenz(a,h)anthracene	NA	NA	NA	0.11 (0.076)	ND (0.38)	ND (0.079)	0.641 (0.076)	0.355 (0.16)	ND (0.078)	NA	NA	NA	NA	0.515 (0.44)
Fluoranthene	NA	NA	NA	1.5 (0.076)	7.02 (1.9)	1.53 (0.79)	5.63 (0.38)	4.86 (0.16)	0.213 (0.078)	NA	NA	NA	NA	1.38 (0.44)
Fluorene	NA	NA	NA	0.0679J (0.076)	14.3 (1.9)	4.94 (0.79)	0.372 (0.076)	5.44 (0.16)	0.652 (0.078)	NA	NA	NA	NA	0.163J (0.44)
Indeno(1,2,3-cd)pyrene	NA	NA	NA	0.867 (0.076)	ND (0.38)	ND (0.079)	1.33 (0.076)	0.76 (0.16)	0.0279J (0.078)	NA	NA	NA	NA	1.06 (0.44)
Naphthalene	NA	NA	NA	0.134 (0.076)	ND (0.38)	8.8 (0.79)	0.201 (0.076)	ND (0.16)	ND (0.078)	NA	NA	NA	NA	0.196J (0.44)
Phenanthrene	NA	NA	NA	0.974 (0.076)	61.6 (1.9)	18.5 (0.79)	3.2 (0.076)	16.4J (20)	1.62 (0.078)	NA	NA	NA	NA	1.22 (0.44)
Pyrene	NA	NA	NA	1.91 (0.076)	7.56 (1.9)	2.11 (0.79)	4.7 (0.076)	4.85 (0.16)	0.343 (0.078)	NA	NA	NA	NA	1.56 (0.44)
Total Petroleum Hydrocarbons	NA	NA	NA	200 (30)	15,400 (2900)	7,200 (1,500)	1,550 (1,500)	12,100 (3,000)	393 (140)	ND (30)	2,420 (760)	7,630 (2,900)	10,400 (2,900)	4,340 (1,600)
Pesticides/PCBs														
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics														
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected

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TABLE 1
Summary of Soil Sampling Results - AOC 1, AOC 1A, and AOC 2 (Aboveground Storage Tanks)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB01	SB02	SB03	SB04	SB05	SB30	TANK1	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	SB01-SS11	SB02-SS01	SB03-SS01	SB04-SS01	SB05-SS01	SB30-SS01	TANK1-SS01			
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB			
Depth	2.5 - 3	1.5 - 2	1.5 - 2	4 - 4.5	4.5 - 5	4 - 4.5	1 - 1.5			
Collection Date	08/07/2000	08/07/2000	08/07/2000	08/07/2000	08/07/2000	11/07/2000	11/07/2000			
Comments	FIELD DUPLICATE									
Volatile Organic Compounds										
Ethyl Benzene	NA	NA	NA	NA	NA	1.52 (0.66)	ND (0.66)	100	1,000	1,000
Xylenes (total)	NA	NA	NA	NA	NA	3.42 (0.66)	ND (0.66)	67	410	1,000
Semivolatile Organic Compounds										
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	0.0437J (0.073)	NA	50	5,100	10,000
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	0.153 (0.073)	NA	100	5,100	10,000
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	0.304 (0.073)	NA	100	570	10,000
Acenaphthene	ND (0.42)	0.025J (0.082)	0.0674J (0.085)	0.0319J (0.084)	0.385 (0.089)	0.988 (0.073)	NA	100	3,400	10,000
Acenaphthylene	0.178J (0.42)	0.0956 (0.082)	0.0548J (0.085)	ND (0.084)	ND (0.089)	ND (0.073)	NA	--	--	--
Anthracene	0.42 (0.42)	0.114 (0.082)	0.295 (0.085)	0.0333J (0.084)	0.421 (0.089)	0.553 (0.073)	NA	100	10,000	10,000
Benzo(a)anthracene	0.227J (0.42)	1.01 (0.082)	1.42 (0.085)	0.25 (0.084)	1.02 (0.089)	0.199 (0.073)	NA	500	0.9	4
Benzo(a)pyrene	0.387J (0.42)	1.32 (0.082)	1.72 (0.085)	0.26 (0.084)	1 (0.089)	0.128 (0.073)	NA	100	0.66	0.66
Benzo(b)fluoranthene	0.31J (0.42)	1.35 (0.082)	1.55 (0.085)	0.21 (0.084)	0.858 (0.089)	0.207 (0.073)	NA	50	0.9	4.
Benzo(g,h,i)perylene	1.24 (0.42)	1.12 (0.082)	1.19 (0.085)	0.125 (0.084)	0.501 (0.089)	0.0728J (0.073)	NA	--	--	--
Benzo(k)fluoranthene	0.19J (0.42)	0.924 (0.082)	1.3 (0.085)	0.202 (0.084)	0.716 (0.089)	0.111 (0.073)	NA	500	0.9	4
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	1.04 (0.073)	NA	100	49	210
Chrysene	0.555 (0.42)	1.2 (0.082)	1.52 (0.085)	0.246 (0.084)	1.08 (0.089)	0.171 (0.073)	NA	500	9	40
Dibenz(a,h)anthracene	ND (0.42)	0.322 (0.082)	0.313 (0.085)	0.046J (0.084)	0.148 (0.089)	ND (0.073)	NA	100	0.66	0.66
Fluoranthene	0.384J (0.42)	1.04 (0.082)	2.16 (0.085)	0.284 (0.084)	2.33 (0.089)	1.28 (0.073)	NA	100	2,300	10,000
Fluorene	ND (0.42)	0.0271J (0.082)	0.0649J (0.085)	0.0254J (0.084)	0.363 (0.089)	2.83 (0.073)	NA	100	2,300	10,000
Indeno(1,2,3-cd)pyrene	0.606 (0.42)	1.11 (0.082)	1.2 (0.085)	0.137 (0.084)	0.51 (0.089)	0.0763 (0.073)	NA	500	0.9	4
Naphthalene	0.284J (0.42)	0.0591J (0.082)	0.197 (0.085)	ND (0.084)	0.199 (0.089)	1.1 (0.073)	NA	100	230	4,200
Phenanthrene	0.416J (0.42)	0.356 (0.082)	1.04 (0.085)	0.0294J (0.084)	2.46 (0.089)	1.53 (0.073)	NA	--	--	--
Pyrene	0.52 (0.42)	1.29 (0.082)	2.25 (0.085)	0.299 (0.084)	2.3 (0.089)	0.823 (0.073)	NA	100	1,700	10,000
Total Petroleum Hydrocarbons	4,090 (1,600)	38.8 (30)	31.8 (30)	51 (30)	123 (32)	14,300 (2,800)	NA	--	10,000	--
Pesticides/PCBs										
Aroclor-1260	NA	NA	NA	NA	NA	0.0337 (0.018)	NA	50	0.49	2
Inorganics										
Arsenic	NA	NA	NA	NA	NA	1.1 (1.1)	NA	--	20	20
Chromium (total)	NA	NA	NA	NA	NA	8.8 (1.1)	NA	--	--	--
Copper	NA	NA	NA	NA	NA	43.5 (2.7)	NA	--	600	600
Lead	NA	NA	NA	NA	NA	34.8 (1.1)	NA	--	400	600
Mercury	NA	NA	NA	NA	NA	0.07 (0.03)	NA	--	14	270
Nickel	NA	NA	NA	NA	NA	10.4 (4.3)	NA	--	250	2,400
Zinc	NA	NA	NA	NA	NA	67.8 (2.2)	NA	--	1,500	1,500

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected

TABLE 2
Summary of Soil Sampling Results - AOC 3 (Former Gasoline UST - South End of Site)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB06	SB06	SB07	SB24	SB25
ENVIRON Sample ID	SB06-SS01	SB06-SS11	SB07-SS01	SB24-SS01	SB25-SS01
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	3.0 - 3.5	3.0 - 3.5	2.0 - 2.5	2.5 - 3.0	0.5 - 1.0
Collection Date	08/03/2000	08/03/2000	08/03/2000	09/11/2000	09/11/2000
Comments		FIELD DUPLICATE			
Volatile Organic Compounds					
1,2-Dichlorobenzene	0.428J (0.73)	0.425J (0.74)	ND (3.7)	ND (0.68)	ND (0.7)
1,3-Dichlorobenzene	0.593J (0.73)	0.51J (0.74)	ND (3.7)	ND (0.68)	ND (0.7)
1,4-Dichlorobenzene	1.68 (0.73)	1.57 (0.74)	ND (3.7)	ND (0.68)	ND (0.7)
Benzene	ND (0.15)	ND (0.15)	ND (0.74)	ND (0.14)	ND (0.14)
Chlorobenzene	0.321J (0.73)	0.304J (0.74)	ND (3.7)	ND (0.68)	ND (0.7)
Ethyl Benzene	0.263 (0.15)	0.252 (0.15)	3.47 (0.74)	23.2 (0.14)	ND (0.14)
Toluene	ND (0.15)	ND (0.15)	ND (0.74)	1.19 (0.14)	ND (0.14)
Xylenes (total)	ND (0.73)	ND (0.74)	20 (3.7)	13.3 (0.68)	ND (0.7)
Inorganics					
Lead	ND (11)	ND (12)	ND (12)	ND (11)	11.6 (11)

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.

Abbreviations:

J = Estimated Concentration
ND = Not Detected
( )= Detection Limit

87370055

TABLE 2

Summary of Soil Sampling Results - AOC 3 (Former Gasoline UST - South End of Site)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB26	SB27	SB28	SB29	
ENVIRON Sample ID	SB26-SS01	SB27-SS01	SB28-SS01	SB29-SS01	
Matrix	SOIL	SOIL	SOIL	SOIL	NJ Impact to
Collection Method	GRAB	GRAB	GRAB	GRAB	Ground Water Soil
Depth	0.5 - 1.0	1.5 - 2.0	3.0 - 3.5	0.5 - 1.0	Cleanup Criteria
Collection Date	09/11/2000	09/11/2000	09/11/2000	09/11/2000	
Comments					
Volatile Organic Compounds					
1,2-Dichlorobenzene	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.71)	50
1,3-Dichlorobenzene	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.71)	100
1,4-Dichlorobenzene	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.71)	100
Benzene	ND (0.14)	0.384 (0.14)	ND (0.14)	ND (0.14)	1
Chlorobenzene	ND (0.7)	ND (0.7)	ND (0.72)	ND (0.71)	1
Ethyl Benzene	0.224 (0.14)	0.883 (0.14)	ND (0.14)	ND (0.14)	100
Toluene	ND (0.14)	1.26 (0.14)	ND (0.14)	ND (0.14)	500
Xylenes (total)	1.36 (0.7)	5.33 (0.7)	ND (0.72)	ND (0.71)	67
Inorganics					
Lead	16.6 (11)	29.9 (11)	ND (11)	128 (11)	--

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.

Abbreviations:

J = Estimated Concentration
ND = Not Detected
( )= Detection Limit

TABLE 2
Summary of Soil Sampling Results - AOC 3 (Former Gasoline UST - South End of Site)
Chemical Leaman Tank Lines - Newark, New Jersey

Location ENVIRON Sample ID Matrix Collection Method Depth Collection Date Comments	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
Volatile Organic Compounds		
1,2-Dichlorobenzene	5,100	10,000
1,3-Dichlorobenzene	5,100	10,000
1,4-Dichlorobenzene	570	10,000
Benzene	3	13
Chlorobenzene	37	680
Ethyl Benzene	1,000	1,000
Toluene	1,000	1,000
Xylenes (total)	410	1,000
Inorganics		
Lead	400	600

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.

Abbreviations:

J = Estimated Concentration
ND = Not Detected
( )= Detection Limit

87737057

TABLE 3

Summary of Soil Sampling Results - AOC 4 (Former 250-Gallon Waste Oil UST)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	WASTE1	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	WASTE1-SS01			
Matrix	SOIL			
Collection Method	GRAB			
Depth	3.0 - 3.5			
Collection Date	08/03/2000			
Comments				
Volatile Organic Compounds	ND	–	–	–
Semi Volatile Organic Compounds				
bis(2-Ethylhexyl)phthalate	31.1 (0.73)	100	49	210
Di-n-octylphthalate	1.98 (0.15)	100	1,100	10,000
PCBs	ND	50	0.49	2
Inorganics				
Arsenic	1.3 (1.2)	–	20	20
Beryllium	ND (0.61)	–	2	2
Cadmium	ND (0.61)	–	39	100
Chromium (total)	10.4 (1.2)	–	–	–
Copper	8.3 (3)	–	600	600
Nickel	7 (4.9)	–	250	2,400
Zinc	36.4 (2.4)	–	1,500	1,500

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 4

Summary of Soil Sampling Results - AOC 6 (Pre-Solv Filling Area)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB08	SB08	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	SB08-SS01	SB08-SS02			
Matrix	SOIL	SOIL			
Collection Method	GRAB	GRAB			
Depth	0.9 - 1.4	2.5 - 3.0			
Collection Date	08/03/2000	08/03/2000			
Comments					
Volatile Organic Compounds					
Benzene	ND (0.72)	**1.86 (0.75)**	1	3	13
Ethyl Benzene	0.872 (0.72)	6.95 (0.75)	100	1,000	1,000
Toluene	ND (0.72)	4.3 (0.75)	500	1,000	1,000
Xylenes (total)	1.25J (3.6)	41.6 (3.7)	67	410	1,000
Total Petroleum Hydrocarbons	11,000 (2,900)	9,510 (2,900)	--	10,000	--

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the NJ Residential Direct Contact Soil Cleanup Criteria.
4. Bold type values exceed the NJ Impact to Ground Water Cleanup Criteria.

Abbreviations:

J = Estimated Concentration
ND = Not Detected
( )= Detection Limit

TABLE 5
Summary of Soil Sampling Results - AOC 7 (Drum Storage Pad)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB15	SB16	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	SB15-SS01	SB16-SS01			
Matrix	SOIL	SOIL			
Collection Method	GRAB	GRAB			
Depth	1.1 - 1.6	1.0 - 1.5			
Collection Date	08/10/2000	08/10/2000			
Comments					
Volatile Organic Compounds					
cis-1,2-Dichloroethene	0.0726J (0.72)	0.076J (0.79)	1	79	1,000
Ethyl Benzene	ND (0.14)	0.076J (0.16)	100	1,000	1,000
Toluene	0.0656J (0.14)	0.0471J (0.16)	500	1,000	1,000
Trichloroethene	0.156J (0.72)	ND (0.79)	1	23	54
Xylenes (total)	0.0854J (0.72)	0.0882J (0.79)	67	410	1,000
Semi Volatile Organic Compounds					
Acenaphthene	ND (0.079)	0.34J (0.4)	100	3,400	10,000
Acenaphthylene	ND (0.079)	0.0906J (0.4)	--	--	--
Anthracene	ND (0.079)	1.33 (0.4)	100	10,000	10,000
Benzo(a)anthracene	0.0239J (0.079)	4.44 (0.4)	500	0.9	4
Benzo(a)pyrene	0.0274J (0.079)	5.11 (0.4)	100	0.66	0.66
Benzo(b)fluoranthene	0.027J (0.079)	4.31 (0.4)	50	0.9	4
Benzo(g,h,i)perylene	0.0467J (0.079)	3.24 (0.4)	--	--	--
Benzo(k)fluoranthene	0.0237J (0.079)	3.93 (0.4)	500	0.9	4
bis(2-Ethylhexyl)phthalate	2.68 (0.079)	1.21 (0.4)	100	49	210
Butylbenzylphthalate	14.9 (0.4)	ND (0.4)	100	1,100	10,000
Chrysene	0.0277J (0.079)	4.62 (0.4)	500	9	40
Dibenz(a,h)anthracene	ND (0.079)	1.16 (0.4)	100	0.66	0.66
Diethylphthalate	0.0444J (0.079)	ND (0.4)	50	10,000	10,000
Di-n-butylphthalate	0.0761J (0.079)	ND (0.4)	100	5,700	10,000
Di-n-octylphthalate	0.274 (0.079)	ND (0.4)	100	1,100	10,000
Fluoranthene	0.0325J (0.079)	9.18 (0.4)	100	2,300	10,000
Fluorene	ND (0.079)	0.326J (0.4)	100	2,300	10,000
Indeno(1,2,3-cd)pyrene	0.037J (0.079)	3.12 (0.4)	500	0.9	4
Naphthalene	ND (0.079)	0.136J (0.4)	100	230	4,200
Phenanthrene	0.0271J (0.079)	4.12 (0.4)	--	--	--
Pyrene	0.0354J (0.079)	7.91 (0.4)	100	1,700	10,000
Pesticides/PCBs					
4,4'-DDD	ND (0.00076)	0.0016 (0.00081)	50	3	12
4,4'-DDT	ND (0.00076)	0.0011 (0.00081)	500	2	9
Aroclor-1260	ND (0.019)	0.0567 (0.02)	50	0.49	2
Endosulfan II	ND (0.00076)	0.0028 (0.00081)	50	340	6,200
Inorganics					
Arsenic	2.1 (1.1)	3.1 (1.1)	--	20	20
Cadmium	ND (0.54)	0.64 (0.55)	--	39	100
Chromium (total)	26.2 (1.1)	24.6 (1.1)	--	--	--
Copper	69.2 (2.7)	93.5 (2.7)	--	600	600
Lead	22.8 (11)	101 (11)	--	400	600
Mercury	0.13 (0.03)	0.23 (0.03)	--	14	270
Nickel	29.5 (4.4)	18.7 (4.4)	--	250	2,400
Zinc	94.6 (2.2)	163 (2.2)	--	1,500	1,500

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 6
Soil Sampling Results - AOC 8 (Maintenance Shop Drum Storage)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB17	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	SB17-SS01			
Matrix	SOIL			
Collection Method	GRAB			
Depth	0.0 - 0.1			
Collection Date	08/01/2000			
Comments				
Volatile Organic Compounds				
Ethylene Glycol	ND (0.01)	--	--	--
Total Petroleum Hydrocarbons	23,200 (7,900)	--	10,000	--

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Underlined values exceed the NJ Residential Direct Contact Soil Cleanup Criteria.

Abbreviations:

ND = Not Detected
( )= Detection Limit

87737061

TABLE 7
Summary of Soil Sampling Results - AOCs 9 and 10 (Wastewater Handling System)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB09	SB10	SB11	SB12	SB13	SB14	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	SB09-SS01	SB10-SS01	SB11-SS01	SB12-SS01	SB13-SS01	SB14-SS01			
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB			
Depth	2.5 - 3.0	0.5 - 1.0	1.5 - 2.0	1.5 - 2.0	2.0 - 2.5	2.0 - 2.5			
Collection Date	08/04/2000	08/04/2000	08/04/2000	08/07/2000	08/07/2000	08/07/2000			
Comments									
Volatile Organic Compounds									
1,1,1-Trichloroethane	ND (3.6)	1.99J (3.4)	0.277J (0.7)	ND (0.88)	ND (0.7)	ND (0.76)	50	210	1,000
1,1-Dichloroethane	ND (3.6)	ND (3.4)	0.264J (0.7)	ND (0.88)	ND (0.7)	ND (0.76)	10	570	1,000
1,2-Dichlorobenzene	ND (3.6)	ND (3.4)	0.175J (0.7)	ND (0.88)	ND (0.7)	ND (0.76)	50	5,100	10,000
1,4-Dichlorobenzene	ND (3.6)	ND (3.4)	0.321J (0.7)	ND (0.88)	ND (0.7)	ND (0.76)	100	570	10,000
cis-1,2-Dichloroethene	ND (3.6)	ND (3.4)	ND (0.7)	ND (0.88)	0.232J (0.7)	0.212J (0.76)	1	79	1,000
Ethyl Benzene	2.3 (0.73)	ND (0.69)	30.1 (0.14)	ND (0.18)	1.46 (0.14)	0.196 (0.15)	100	1,000	1,000
Methylene Chloride	ND (3.6)	ND (3.4)	ND (0.7)	ND (0.88)	ND (0.7)	0.244J (0.76)	1	49	210
Tetrachloroethene	ND (3.6)	ND (3.4)	ND (0.7)	ND (0.88)	ND (0.7)	**1.71 (0.76)**	1	4	6
Toluene	1.31 (0.73)	0.814 (0.69)	16.2 (0.14)	ND (0.18)	ND (0.14)	0.185 (0.15)	500	1,000	1,000
Xylenes (total)	15.2 (3.6)	ND (3.4)	30.2 (0.7)	ND (0.88)	0.516J (0.7)	1.78 (0.76)	67	410	1,000
Semi Volatile Organic Compounds									
Acenaphthene	ND (0.39)	ND (0.082)	0.0942 (0.076)	ND (0.075)	ND (0.08)	0.119 (0.08)	100	3,400	10,000
Benzo(a)anthracene	0.141J (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.0565J (0.08)	ND (0.08)	500	0.9	4
Benzo(a)pyrene	0.0855J (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.255 (0.08)	ND (0.08)	100	0.66	0.66
Benzo(b)fluoranthene	0.127J (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.218 (0.08)	ND (0.08)	50	0.9	4
Benzo(g,h,i)perylene	0.0624J (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.201 (0.08)	ND (0.08)	--	--	--
Benzo(k)fluoranthene	0.0508J (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.132 (0.08)	ND (0.08)	500	0.9	4
bis(2-Ethylhexyl)phthalate	40.4 (3.9)	88.9 (0.082)	14.5 (0.76)	0.59 (0.075)	31.8 (0.8)	35 (0.8)	100	49	210
Butylbenzylphthalate	0.785 (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	ND (0.08)	ND (0.08)	100	1,100	10,000
Chrysene	0.177J (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.0883 (0.08)	ND (0.08)	500	9	40
Diethylphthalate	ND (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	ND (0.08)	0.133 (0.08)	50	10,000	10,000
Di-n-butylphthalate	ND (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	ND (0.08)	0.0516J (0.08)	100	5,700	10,000
Di-n-octylphthalate	2.12 (0.39)	2.18 (0.082)	0.354 (0.076)	ND (0.075)	0.569 (0.08)	1.1 (0.08)	100	1,100	10,000
Fluoranthene	ND (0.39)	0.0303J (0.082)	ND (0.076)	ND (0.075)	0.0782J (0.08)	ND (0.08)	100	2,300	10,000
Fluorene	9.09 (0.39)	ND (0.082)	0.259 (0.076)	ND (0.075)	ND (0.08)	0.217 (0.08)	100	2,300	10,000
Indeno(1,2,3-cd)pyrene	ND (0.39)	ND (0.082)	ND (0.076)	ND (0.075)	0.14 (0.08)	ND (0.08)	500	0.9	4
Naphthalene	10.2 (0.39)	0.0461J (0.082)	0.574 (0.076)	ND (0.075)	0.233 (0.08)	0.242 (0.08)	100	230	4,200
N-Nitrosodiphenylamine	ND (0.98)	0.0245J (0.2)	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.2)	100	140	600
Phenanthrene	18.3 (0.39)	ND (0.082)	0.401 (0.076)	ND (0.075)	0.0632J (0.08)	0.377 (0.08)	--	--	--
Phenol	ND (0.98)	ND (0.2)	ND (0.19)	ND (0.19)	ND (0.2)	0.299 (0.2)	50	10,000	10,000
Phenol	20.3 (2.9)	ND (2.8)	ND (2.9)	ND (2.7)	6.4 (2.9)	5.1 (2.9)	50	10,000	10,000
Pyrene	1.61 (0.39)	0.0816J (0.082)	0.0461J (0.076)	ND (0.075)	0.219 (0.08)	0.0523J (0.08)	100	1,700	10,000
Pesticides/PCBs									
4,4'-DDD	0.0046 (0.00087)	0.0019 (0.00084)	0.0017 (0.00086)	ND (0.00079)	0.0013 (0.00086)	0.001 (0.00089)	50	3	12
4,4'-DDE	0.0016 (0.00087)	ND (0.00084)	ND (0.00086)	ND (0.00079)	ND (0.00086)	ND (0.00089)	50	2	9
4,4'-DDT	0.0044 (0.00087)	0.0226 (0.00084)	0.0154 (0.00086)	ND (0.00079)	ND (0.00086)	ND (0.00089)	500	2	9
alpha-BHC	0.0014 (0.00087)	ND (0.00084)	ND (0.00086)	ND (0.00079)	ND (0.00086)	ND (0.00089)	--	--	--
Aroclor-1260	ND (0.021)	0.0937 (0.02)	0.0406 (0.021)	ND (0.02)	ND (0.022)	ND (0.022)	50	0.49	2
Endosulfan II	0.0022 (0.00087)	ND (0.00084)	ND (0.00086)	ND (0.00079)	ND (0.00086)	ND (0.00089)	50	340	6,200
Endosulfan sulfate	ND (0.00087)	0.0022 (0.00084)	0.0012 (0.00086)	ND (0.00079)	ND (0.00086)	ND (0.00089)	--	--	--
Inorganics									
Arsenic	90.3 (1.1)	1.9 (1.1)	2.4 (1.2)	ND (1.1)	2.7 (1.2)	10.9 (1.2)	--	20	20
Cadmium	ND (0.57)	ND (0.56)	ND (0.58)	ND (0.54)	ND (0.58)	1.1 (0.59)	--	39	100
Chromium (total)	12.1 (1.1)	33.3 (1.1)	29.1 (1.2)	20.3 (1.1)	12.6 (1.2)	31 (1.2)	--	--	--
Copper	9.8 (2.9)	142 (2.8)	72.3 (2.9)	93.7 (2.7)	38.7 (2.9)	51.8 (2.9)	--	600	600
Lead	ND (11)	282 (11)	14.8 (12)	ND (11)	37.1 (12)	30.8 (12)	--	400	600
Mercury	0.05 (0.03)	0.16 (0.03)	0.06 (0.03)	ND (0.03)	0.14 (0.03)	0.17 (0.03)	--	14	270
Nickel	6.5 (4.6)	34.8 (4.5)	54.1 (4.6)	38.1 (4.3)	12.2 (4.7)	19.5 (4.7)	--	250	2,400
Zinc	19.9 (2.3)	136 (2.2)	195 (2.3)	43 (2.2)	102 (2.3)	108 (2.4)	--	1,500	1,500

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
ND = Not Detected
( )= Detection Limit

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TABLE 8

Summary of Soil Sampling Results - AOC 11 (Stained Soil near Red Storage Area)

Chemical Leaman Tank Lines - Newark, New Jersey

Location	POSTEX1	POSTEX2	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	POSTEX1-SS01	POSTEX2-SS01			
Matrix	SOIL	SOIL			
Collection Method	GRAB	GRAB			
Depth	0.5 - 1.0	0.5 - 1.0			
Collection Date	08/01/2000; 11/07/2000	08/01/2000; 11/07/2000			
Comments					
Volatile Organic Compounds					
Tetrachloroethene	ND (0.78)	0.556J (0.72)	1	4	6
Toluene	0.183 (0.16)	ND (0.14)	500	1,000	1,000
Inorganics					
Antimony	6.5 (1)	15.8 (1.1)	--	14	340
Arsenic	5.7 (1)	19 (1.1)	--	20	20
Beryllium	0.77 (0.53)	0.61 (0.54)	--	2	2
Cadmium	3.5 (0.53)	9.7 (0.54)	--	39	100
Chromium (total)	72.5 (1)	136 (1.1)	--	--	--
Copper	247 (2.6)	772 (2.7)	--	600	600
Lead	727 (1)	2,060 (1.1)	--	400	600
Mercury	0.71 (0.06)	2.5 (0.34)	--	14	270
Nickel	89.6 (4.2)	94.2 (4.3)	--	250	2,400
Selenium	ND (1)	2.9 (1.1)	--	63	3,100
Silver	ND (1)	1.5 (1.1)	--	110	4,100
Zinc	1,210 (4.2)	3,400 (11)	--	1,500	1,500

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non Residential Soil Cleanup Criteria.

Abbreviations:

J = Estimated Concentration

ND = Not Detected

TABLE 9
Summary of Soil Sampling Results - AOC 12 (Staining near Trailer Staging Area)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	STAIN5A	STAIN5A	STAIN5B	STAIN5B	STAIN5B	STAIN5C	STAIN5C	STAIN5D
ENVIRON Sample ID	STAIN 5A-SS01	STAIN 5A-SS02	STAIN 5B-SS01	STAIN 5B-SS01D	STAIN 5B-SS02	STAIN 5C-SS01	STAIN 5C-SS02	STAIN 5D-SS01
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	0.5 - 1.0	3.0 - 3.5	2.0 - 2.5	2.0 - 2.5	3.5 - 4.0	1.0 - 1.5	3.0 - 3.5	3.0 - 3.5
Collection Date	07/19/2000	07/19/2000	07/19/2000	07/19/2000	07/19/2000	07/19/2000	07/19/2000	08/08/2000
Comments				FIELD DUPLICATE				
Volatile Organic Compounds								
1,2-Dichloroethane	ND (0.74)	ND (0.73)	ND (0.73)	ND (0.67)	ND (0.68)	ND (0.64)	ND (0.86)	ND (0.69)
Benzene	**1.51 (0.15)**	**2.64 (0.15)**	0.188 (0.15)	0.236 (0.13)	ND (0.14)	0.767 (0.13)	**1.19 (0.17)**	0.359 (0.14)
Ethyl Benzene	2.15 (0.15)	0.0773J (0.15)	0.849 (0.15)	1.03 (0.13)	ND (0.14)	0.149 (0.13)	0.242 (0.17)	ND (0.14)
Tetrachloroethene	ND (0.74)	ND (0.73)	ND (0.73)	ND (0.67)	ND (0.68)	ND (0.64)	ND (0.86)	ND (0.69)
Toluene	0.259 (0.15)	0.416 (0.15)	0.471 (0.15)	0.714 (0.13)	ND (0.14)	0.162 (0.13)	0.189 (0.17)	ND (0.14)
Xylenes (total)	0.225J (0.74)	0.308J (0.73)	1.93 (0.73)	2.28 (0.67)	ND (0.68)	0.081J (0.64)	ND (0.86)	ND (0.69)
Semi Volatile Organic Compounds								
1,2-Dichlorobenzene	ND (0.072)	ND (0.076)	0.26J (0.39)	0.308J (0.38)	ND (0.076)	ND (0.36)	ND (0.083)	NA
Acenaphthene	0.165 (0.072)	0.104 (0.076)	1.61 (0.39)	1.18 (0.38)	2.46 (0.076)	0.109J (0.36)	ND (0.083)	NA
Acenaphthylene	0.819 (0.072)	0.0267J (0.076)	0.665 (0.39)	0.514 (0.38)	0.14 (0.076)	0.331J (0.36)	0.464 (0.083)	NA
Anthracene	0.56 (0.072)	0.212 (0.076)	1.62 (0.39)	2.11 (0.38)	4.82 (0.076)	0.258J (0.36)	0.0563J (0.083)	NA
Benzo(a)anthracene	1.13 (0.072)	0.637 (0.076)	1.52 (0.39)	1.94 (0.38)	10.6 (0.76)	0.49 (0.36)	0.248 (0.083)	NA
Benzo(a)pyrene	1.27 (0.072)	0.586 (0.076)	1.19 (0.39)	1.55 (0.38)	10.3 (0.76)	0.57 (0.36)	0.209 (0.083)	NA
Benzo(b)fluoranthene	1.18 (0.072)	0.385 (0.076)	1.49 (0.39)	1.89 (0.38)	7.58 (0.76)	0.556 (0.36)	0.188 (0.083)	NA
Benzo(g,h,i)perylene	1.06 (0.072)	0.368 (0.076)	0.654 (0.39)	0.756 (0.38)	6.92 (0.76)	0.269J (0.36)	0.146 (0.083)	NA
Benzo(k)fluoranthene	0.751 (0.072)	0.506 (0.076)	0.767 (0.39)	0.909 (0.38)	4.59 (0.076)	0.493 (0.36)	0.191 (0.083)	NA
bis(2-Ethylhexyl)phthalate	**463 (18)**	0.153 (0.076)	3.25 (0.39)	2.58 (0.38)	ND (0.076)	17.7 (0.36)	0.047J (0.083)	ND (0.078)
Chrysene	1.23 (0.072)	0.603 (0.076)	2.31 (0.39)	3.07 (0.38)	10.7 (0.76)	0.676 (0.36)	0.246 (0.083)	NA
Dibenz(a,h)anthracene	0.381 (0.072)	0.145 (0.076)	0.3J (0.39)	0.322J (0.38)	3.03 (0.076)	0.123J (0.36)	0.0738J (0.083)	NA
Di-n-butylphthalate	0.38 (0.072)	ND (0.076)	ND (0.39)	ND (0.38)	ND (0.076)	ND (0.36)	ND (0.083)	NA
Di-n-octylphthalate	1.41 (0.072)	ND (0.076)	ND (0.39)	ND (0.38)	ND (0.076)	ND (0.36)	ND (0.083)	NA
Fluoranthene	1.82 (0.072)	1.37 (0.076)	2.89 (0.39)	3.73 (0.38)	24.4 (0.76)	1.02 (0.36)	0.396 (0.083)	NA
Fluorene	0.161 (0.072)	0.0986 (0.076)	1.25 (0.39)	1.13 (0.38)	2.6 (0.076)	0.126J (0.36)	0.0216J (0.083)	NA
Indeno(1,2,3-cd)pyrene	0.841 (0.072)	0.307 (0.076)	0.568 (0.39)	0.649 (0.38)	6.01 (0.76)	0.243J (0.36)	0.124 (0.083)	NA
Naphthalene	0.231 (0.072)	0.0522J (0.076)	0.925 (0.39)	1.01 (0.38)	0.251 (0.076)	0.198J (0.36)	ND (0.083)	NA
Phenanthrene	0.986 (0.072)	0.914 (0.076)	4.68 (0.39)	5.71 (0.38)	20.2 (0.76)	0.789 (0.36)	0.17 (0.083)	NA
Pyrene	1.77 (0.072)	1.63 (0.076)	3.67 (0.39)	5.34 (0.38)	23.4 (0.76)	0.947 (0.36)	0.438 (0.083)	NA

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 9
Summary of Soil Sampling Results - AOC 12 (Staining near Trailer Staging Area)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	STAIN5E	STAIN5F	STAIN5G	STAIN6A	STAIN6A	STAIN6B	STAIN6B	STAIN6C
ENVIRON Sample ID	STAIN 5E-SS01	STAIN 5F-SS01	STAIN 5G-SS01	STAIN 6A-SS01	STAIN 6A-SS02	STAIN 6B-SS01	STAIN 6B-SS02	STAIN 6C-SS01
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	3.0 - 3.5	2.5 - 3.0	3.0 - 3.5	2.0 - 2.5	3.0 - 3.5	0.0 - 0.5	3.2 - 3.7	0.0 - 0.5
Collection Date	08/08/2000	08/08/2000	08/08/2000	07/19/2000	07/19/2000	07/19/2000	07/19/2000	07/19/2000
Comments								
Volatile Organic Compounds								
1,2-Dichloroethane	ND (0.74)	ND (0.72)	ND (0.68)	ND (0.68)	ND (0.69)	ND (0.67)	ND (0.71)	ND (0.63)
Benzene	0.787 (0.15)	ND (0.14)	**1.42 (0.14)**	**1.52 (0.14)**	0.407 (0.14)	0.149 (0.13)	0.416 (0.14)	ND (0.12)
Ethyl Benzene	ND (0.15)	ND (0.14)	0.279 (0.14)	ND (0.14)	ND (0.14)	ND (0.13)	ND (0.14)	1.22 (0.12)
Tetrachloroethene	ND (0.74)	ND (0.72)	ND (0.68)	ND (0.68)	ND (0.69)	**4.76 (0.67)**	ND (0.71)	ND (0.63)
Toluene	ND (0.15)	ND (0.14)	0.213 (0.14)	0.481 (0.14)	ND (0.14)	ND (0.13)	ND (0.14)	ND (0.12)
Xylenes (total)	ND (0.74)	ND (0.72)	ND (0.68)	ND (0.68)	ND (0.69)	ND (0.67)	ND (0.71)	4 (0.63)
Semi Volatile Organic Compounds								
1,2-Dichlorobenzene	NA	NA	NA	ND (0.37)	ND (0.072)	ND (0.34)	ND (0.076)	ND (0.34)
Acenaphthene	NA	NA	NA	ND (0.37)	ND (0.072)	2.92 (0.34)	0.189 (0.076)	0.853 (0.34)
Acenaphthylene	NA	NA	NA	0.972 (0.37)	ND (0.072)	0.676 (0.34)	0.0337J (0.076)	0.327J (0.34)
Anthracene	NA	NA	NA	0.534 (0.37)	ND (0.072)	6.95 (0.34)	0.305 (0.076)	2.33 (0.34)
Benzo(a)anthracene	NA	NA	NA	2.66 (0.37)	ND (0.072)	29.7 (1.7)	0.534 (0.076)	10.4 (0.34)
Benzo(a)pyrene	NA	NA	NA	2.74 (0.37)	ND (0.072)	25.4 (1.7)	0.44 (0.076)	10.3 (0.34)
Benzo(b)fluoranthene	NA	NA	NA	1.92 (0.37)	ND (0.072)	27.6 (1.7)	0.372 (0.076)	12.5 (0.34)
Benzo(g,h,i)perylene	NA	NA	NA	2.16 (0.37)	ND (0.072)	16.8 (0.34)	0.255 (0.076)	2.19 (0.34)
Benzo(k)fluoranthene	NA	NA	NA	2.21 (0.37)	ND (0.072)	11.1 (0.34)	0.351 (0.076)	9.41 (0.34)
bis(2-Ethylhexyl)phthalate	ND (0.077)	NA	NA	0.457 (0.37)	ND (0.072)	2.86 (0.34)	ND (0.076)	4.1 (0.34)
Chrysene	NA	NA	NA	2.5 (0.37)	ND (0.072)	30.5 (1.7)	0.573 (0.076)	11.7 (0.34)
Dibenz(a,h)anthracene	NA	NA	NA	0.666 (0.37)	ND (0.072)	8.72 (0.34)	0.121 (0.076)	1.44 (0.34)
Di-n-butylphthalate	NA	NA	NA	ND (0.37)	ND (0.072)	ND (0.34)	ND (0.076)	ND (0.34)
Di-n-octylphthalate	NA	NA	NA	ND (0.37)	ND (0.072)	ND (0.34)	ND (0.076)	ND (0.34)
Fluoranthene	NA	NA	NA	4.5 (0.37)	ND (0.072)	64.7 (1.7)	1.51 (0.076)	19.3 (0.69)
Fluorene	NA	NA	NA	0.154J (0.37)	ND (0.072)	2.5 (0.34)	0.189 (0.076)	0.692 (0.34)
Indeno(1,2,3-cd)pyrene	NA	NA	NA	1.64 (0.37)	ND (0.072)	17.6 (0.34)	0.232 (0.076)	2.68 (0.34)
Naphthalene	NA	NA	NA	0.329J (0.37)	ND (0.072)	0.804 (0.34)	0.0614J (0.076)	1.19 (0.34)
Phenanthrene	NA	NA	NA	1.4 (0.37)	ND (0.072)	35.5 (1.7)	1.76 (0.076)	11.6 (0.34)
Pyrene	NA	NA	NA	4.56 (0.37)	ND (0.072)	57.4 (1.7)	1.48 (0.076)	16.9 (0.34)

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 9
Summary of Soil Sampling Results - AOC 12 (Staining near Trailer Staging Area)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	STAIN6C	STAIN6C	STAIN6D	STAIN6E	STAIN6F	STAIN6G	STAIN6G	
ENVIRON Sample ID	STAIN 6C-SS01D	STAIN 6C-SS02	STAIN 6D-SS01	STAIN 6E-SS01	STAIN 6F-SS01	STAIN 6G-SS01	STAIN 6G-SS11	
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	NJ Impact to
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	Ground Water Soil
Depth	0.0 - 0.5	2.5 - 3.0	2.0 - 2.5	0.0 - 0.5	0.0 - 0.5	2.0 - 2.5	2.0 - 2.5	Cleanup Criteria
Collection Date	07/19/2000	07/19/2000	08/08/2000	08/08/2000	08/08/2000	08/08/2000	08/08/2000	
Comments	FIELD DUPLICATE						FIELD DUPLICATE	
Volatile Organic Compounds								
1,2-Dichloroethane	ND (0.63)	ND (0.74)	ND (0.68)	ND (0.65)	0.24J (0.64)	ND (0.78)	ND (0.72)	1
Benzene	ND (0.12)	0.362 (0.15)	0.253 (0.14)	ND (0.13)	ND (0.13)	0.566 (0.16)	0.678 (0.14)	1
Ethyl Benzene	2.59 (0.12)	ND (0.15)	ND (0.14)	ND (0.13)	ND (0.13)	ND (0.16)	0.143 (0.14)	100
Tetrachloroethene	ND (0.63)	ND (0.74)	ND (0.68)	ND (0.65)	ND (0.64)	ND (0.78)	ND (0.72)	1
Toluene	ND (0.12)	ND (0.15)	0.213 (0.14)	ND (0.13)	ND (0.13)	ND (0.16)	ND (0.14)	500
Xylenes (total)	9.25 (0.63)	ND (0.74)	0.202J (0.68)	ND (0.65)	ND (0.64)	ND (0.78)	ND (0.72)	67
Semi Volatile Organic Compounds								
1,2-Dichlorobenzene	ND (0.34)	ND (0.073)	NA	NA	NA	NA	NA	50
Acenaphthene	0.918 (0.34)	0.0625J (0.073)	NA	NA	NA	NA	NA	100
Acenaphthylene	0.345 (0.34)	0.578 (0.073)	NA	NA	NA	NA	NA	--
Anthracene	2.49 (0.34)	0.0441J (0.073)	NA	NA	NA	NA	NA	100
Benzo(a)anthracene	12 (0.34)	0.132 (0.073)	NA	NA	NA	NA	NA	500
Benzo(a)pyrene	12.3 (0.34)	0.117 (0.073)	NA	NA	NA	NA	NA	100
Benzo(b)fluoranthene	12.7 (0.34)	0.0903 (0.073)	NA	NA	NA	NA	NA	50
Benzo(g,h,i)perylene	4.83 (0.34)	0.0708J (0.073)	NA	NA	NA	NA	NA	--
Benzo(k)fluoranthene	8.37 (0.34)	0.0943 (0.073)	NA	NA	NA	NA	NA	500
bis(2-Ethylhexyl)phthalate	2.34 (0.34)	0.0895 (0.073)	NA	NA	NA	NA	NA	100
Chrysene	13.1 (0.34)	0.152 (0.073)	NA	NA	NA	NA	NA	500
Dibenz(a,h)anthracene	2.69 (0.34)	0.0329J (0.073)	NA	NA	NA	NA	NA	100
Di-n-butylphthalate	ND (0.34)	ND (0.073)	NA	NA	NA	NA	NA	100
Di-n-octylphthalate	ND (0.34)	ND (0.073)	NA	NA	NA	NA	NA	100
Fluoranthene	24.7 (0.34)	0.274 (0.073)	NA	NA	NA	NA	NA	100
Fluorene	0.803 (0.34)	0.0221J (0.073)	NA	NA	NA	NA	NA	100
Indeno(1,2,3-cd)pyrene	5.54 (0.34)	0.0561J (0.073)	NA	NA	NA	NA	NA	500
Naphthalene	1.12 (0.34)	0.188 (0.073)	NA	NA	NA	NA	NA	100
Phenanthrene	13 (0.34)	0.189 (0.073)	NA	NA	NA	NA	NA	--
Pyrene	21.8 (0.34)	0.312 (0.073)	NA	NA	NA	NA	NA	100

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 9
Summary of Soil Sampling Results - AOC 12 (Staining near Trailer Staging Area)
Chemical Leaman Tank Lines - Newark, New Jersey

Location ENVIRON Sample ID Matrix Collection Method Depth Collection Date Comments	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
Volatile Organic Compounds		
1,2-Dichloroethane	6	24
Benzene	3	13
Ethyl Benzene	1,000	1,000
Tetrachloroethene	4	6
Toluene	1,000	1,000
Xylenes (total)	410	1,000
Semi Volatile Organic Compounds		
1,2-Dichlorobenzene	5,100	10,000
Acenaphthene	3,400	10,000
Acenaphthylene	--	--
Anthracene	10,000	10,000
Benzo(a)anthracene	0.9	4
Benzo(a)pyrene	0.66	0.66
Benzo(b)fluoranthene	0.9	4
Benzo(g,h,i)perylene	--	--
Benzo(k)fluoranthene	0.9	4
bis(2-Ethythexyl)phthalate	49	210
Chrysene	9	40
Dibenz(a,h)anthracene	0.66	0.66
Di-n-butylphthalate	5,700	10,000
Di-n-octylphthalate	1,100	10,000
Fluoranthene	2,300	10,000
Fluorene	2,300	10,000
Indeno(1,2,3-cd)pyrene	0.9	4
Naphthalene	230	4,200
Phenanthrene	--	--
Pyrene	1,700	10,000

Notes:
1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:
J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 10
Summary of Soil Sampling Results - AOC 13 (Incident Spill Report)
Chemical Leaman Tank Lines - Newark, New Jersey

Location	SB18	SB19	SB20	SB21	SB22	SB23	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	SB18-SS01	SB19-SS01	SB20-SS01	SB21-SS01	SB22-SS01	SB23-SS01			
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB			
Depth	1.5 - 2.0	0.0 - 0.5	0.0 - 0.5	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0			
Collection Date	07/19/2000	07/19/2000	07/19/2000	08/10/2000	08/10/2000	08/10/2000			
Comments									
Volatile Organic Compounds									
Benzene	ND (0.12)	NA	NA	0.921 (0.16)	0.894 (0.13)	ND (0.15)	1	3	13
cis-1,2-Dichloroethene	15.5 (0.62)	NA	NA	0.419J (0.79)	0.0626J (0.65)	ND (0.74)	1	79	1,000
Ethyl Benzene	ND (0.12)	NA	NA	1.59 (0.16)	0.612 (0.13)	ND (0.15)	100	1,000	1,000
Tetrachloroethene	0.519J (0.62)	NA	NA	0.491J (0.79)	0.519J (0.65)	ND (0.74)	1	4	6
Toluene	0.409 (0.12)	NA	NA	0.252 (0.16)	1.83 (0.13)	ND (0.15)	500	1,000	1,000
trans-1,2-Dichloroethene	0.549J (0.62)	NA	NA	ND (0.79)	ND (0.65)	ND (0.74)	50	1,000	1,000
Trichloroethene	**4.89 (0.62)**	NA	NA	0.851 (0.79)	0.231J (0.65)	ND (0.74)	1	23	54
Xylenes (total)	0.195J (0.62)	NA	NA	0.216J (0.79)	2.14 (0.65)	ND (0.74)	67	410	1,000
Semi Volatile Organic Compounds									
Acenaphthene	0.184J (0.38)	NA	NA	NA	NA	NA	100	3,400	10,000
Acenaphthylene	2.87 (0.38)	NA	NA	NA	NA	NA	--	--	--
Anthracene	0.311J (0.38)	NA	NA	NA	NA	NA	100	10,000	10,000
Benzo(a)anthracene	1.52 (0.38)	NA	NA	NA	NA	NA	500	0.9	4
Benzo(a)pyrene	1.44 (0.38)	NA	NA	NA	NA	NA	100	0.66	0.66
Benzo(b)fluoranthene	2.11 (0.38)	NA	NA	NA	NA	NA	50	0.9	4
Benzo(g,h,i)perylene	1.44 (0.38)	NA	NA	NA	NA	NA	--	--	--
Benzo(k)fluoranthene	1.45 (0.38)	NA	NA	NA	NA	NA	500	0.9	4
bis(2-Ethylhexyl)phthalate	22.8 (1.9)	NA	NA	NA	NA	NA	100	49	210
Chrysene	2.32 (0.38)	NA	NA	NA	NA	NA	500	9	40
Dibenz(a,h)anthracene	0.639 (0.38)	NA	NA	NA	NA	NA	100	0.66	0.66
Fluoranthene	1.58 (0.38)	NA	NA	NA	NA	NA	100	2,300	10,000
Fluorene	0.241J (0.38)	NA	NA	NA	NA	NA	100	2,300	10,000
Indeno(1,2,3-cd)pyrene	1.24 (0.38)	NA	NA	NA	NA	NA	500	0.9	4
Naphthalene	1.53 (0.38)	NA	NA	NA	NA	NA	100	230	4,200
Phenanthrene	0.724 (0.38)	NA	NA	NA	NA	NA	--	--	--
Pyrene	2.18 (0.38)	NA	NA	NA	NA	NA	100	1,700	10,000
Total Petroleum Hydrocarbons	4,720 (2,600)	2,460 (1,300)	427 (130)	NA	NA	NA	--	10,000	--

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

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TABLE 11
Summary of Soil Sampling Results - Historic Fill Material
Chemical Leaman Tank Lines - Newark, New Jersey

Location	FILL5A	FILL5B	FILL5B	FILL5C	FILL6	FILL7	FILL7A	FILL7A
ENVIRON Sample ID	FILL5A-SS01	FILL5B-SS01	FILL5B-SS02	FILL5C-SS01	FILL6-SS01	FILL7-SS01	FILL7A-SS01	FILL7A-SS02
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	2.8 - 3.3	3.5 - 4.0	8.5 - 9.0	3.0 - 3.5	6.0 - 6.5	7.0 - 8.0	0.0 - 0.5	6.0 - 6.5
Collection Date	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/18/2000	07/18/2000
Comments								
Volatile Organic Compounds								
Benzene	ND (0.14)	0.572 (0.15)	ND (0.24)	ND (0.14)	NA	NA	ND (0.12)	0.195 (0.14)
cis-1,2-Dichloroethene	0.718 (0.7)	ND (0.76)	ND (1.2)	ND (0.71)	NA	NA	ND (0.61)	ND (0.69)
Ethyl Benzene	0.345 (0.14)	0.187 (0.15)	ND (0.24)	ND (0.14)	NA	NA	0.623 (0.12)	ND (0.14)
Tetrachloroethene	0.187J (0.7)	ND (0.76)	ND (1.2)	ND (0.71)	NA	NA	ND (0.61)	ND (0.69)
Toluene	ND (0.14)	0.241 (0.15)	ND (0.24)	ND (0.14)	NA	NA	ND (0.12)	ND (0.14)
Trichloroethene	0.274J (0.7)	ND (0.76)	ND (1.2)	ND (0.71)	NA	NA	ND (0.61)	ND (0.69)
Xylenes (total)	ND (0.7)	0.8 (0.76)	0.308J (1.2)	ND (0.71)	NA	NA	2.07 (0.61)	ND (0.69)
Semi Volatile Organic Compounds								
Acenaphthene	NA	NA	NA	NA	0.694 (0.4)	1.35 (0.78)	NA	NA
Acenaphthylene	NA	NA	NA	NA	1.23 (0.4)	0.122J (0.78)	NA	NA
Anthracene	NA	NA	NA	NA	0.67 (0.4)	13 (0.78)	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	2.33 (0.4)	7.17 (0.78)	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	2.41 (0.4)	5.23 (0.78)	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	1.79 (0.4)	4.48 (0.78)	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	1.33 (0.4)	1.9 (0.78)	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	1.45 (0.4)	5.96 (0.78)	NA	NA
Chrysene	NA	NA	NA	NA	2.76 (0.4)	6.81 (0.78)	NA	NA
Fluoranthene	NA	NA	NA	NA	3.67 (0.4)	19.8 (0.78)	NA	NA
Fluorene	NA	NA	NA	NA	0.483 (0.4)	1.8 (0.78)	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	1.25 (0.4)	2.01 (0.78)	NA	NA
Naphthalene	NA	NA	NA	NA	0.134J (0.4)	0.602J (0.78)	NA	NA
Phenanthrene	NA	NA	NA	NA	1.26 (0.4)	20 (0.78)	NA	NA
Pyrene	NA	NA	NA	NA	4.7 (0.4)	18 (0.78)	NA	NA
PCBs								
Aroclor-1248	NA	NA	NA	NA	ND (0.021)	0.892 (0.021)	NA	NA
Aroclor-1260	NA	NA	NA	NA	ND (0.021)	3.55 (0.21)	NA	NA
Total Petroleum Hydrocarbons	NA	NA	NA	NA	NA	NA	11,800 (6,600)	ND (1,400)

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 11
Summary of Soil Sampling Results - Historic Fill Material
Chemical Leaman Tank Lines - Newark, New Jersey

Location	FILL7A	FILL7B	FILL7B	FILL7B	FILL7C	FILL7C	FILL7C
ENVIRON Sample ID	FILL7A-SS03	FILL7B-SS01	FILL7B-SS02	FILL7B-SS03	FILL7C-SS01	FILL7C-SS02	FILL7C-SS03
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	7.3 - 7.8	4.0 - 4.5	5.0 - 5.5	6.5 - 7.0	0.0 - 0.5	6.0 - 6.5	7.3 - 7.8
Collection Date	08/08/2000	07/18/2000	07/18/2000	08/08/2000	07/18/2000	07/18/2000	08/08/2000
Comments							
Volatile Organic Compounds							
Benzene	NA	**1.06 (0.14)**	0.427 (0.15)	NA	ND (0.13)	ND (0.13)	NA
cis-1,2-Dichloroethene	NA	ND (0.73)	ND (0.75)	NA	ND (0.63)	ND (0.66)	NA
Ethyl Benzene	NA	0.54 (0.14)	0.574 (0.15)	NA	43.1 (0.13)	ND (0.13)	NA
Tetrachloroethene	NA	0.628J (0.73)	0.364J (0.75)	NA	ND (0.63)	0.206J (0.66)	NA
Toluene	NA	12.6 (0.14)	6.81 (0.15)	NA	0.222 (0.13)	ND (0.13)	NA
Trichloroethene	NA	ND (0.73)	ND (0.75)	NA	ND (0.63)	ND (0.66)	NA
Xylenes (total)	NA	2.41 (0.73)	3.16 (0.75)	NA	**170 (0.63)**	0.131J (0.66)	NA
Semi Volatile Organic Compounds							
Acenaphthene	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA
PCBs							
Aroclor-1248	ND (0.11)	NA	NA	ND (0.12)	NA	NA	ND (0.1)
Aroclor-1260	0.147 (0.11)	NA	NA	ND (0.12)	NA	NA	0.115 (0.1)
Total Petroleum Hydrocarbons	NA	1,360 (760)	715 (300)	NA	5,700 (2,700)	6,470 (2,800)	NA

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

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TABLE 11
Summary of Soil Sampling Results - Historic Fill Material
Chemical Leaman Tank Lines - Newark, New Jersey

Location	FILL7D	FILL7E	FILL7F	FILL7G	FILL7H	FILL7I	STRMFILL8A	STRMFILL8A
ENVIRON Sample ID	FILL7D-SS01	FILL7E-SS01	FILL7F-SS01	FILL7G-SS01	FILL7H-SS01	FILL7I-SS01	STRMFILL8A-SS01	STRMFILL8A-SS02
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Depth	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.5 - 1.0	1.5 - 2.0	3.3 - 3.8	0.5 - 1.0	3.5 - 4.0
Collection Date	08/08/2000	08/08/2000	08/08/2000	08/08/2000	08/08/2000	08/08/2000	07/18/2000	07/18/2000
Comments								
Volatile Organic Compounds								
Benzene	NA	NA	ND (0.15)	ND (0.15)	ND (0.14)	ND (0.13)	ND (0.14)	ND (0.13)
cis-1,2-Dichloroethene	NA	NA	ND (0.74)	ND (0.74)	ND (0.69)	ND (0.65)	ND (0.68)	ND (0.64)
Ethyl Benzene	NA	NA	ND (0.15)	ND (0.15)	ND (0.14)	ND (0.13)	ND (0.14)	ND (0.13)
Tetrachloroethene	NA	NA	ND (0.74)	ND (0.74)	ND (0.69)	ND (0.65)	0.0611J (0.68)	ND (0.64)
Toluene	NA	NA	ND (0.15)	ND (0.15)	ND (0.14)	ND (0.13)	ND (0.14)	ND (0.13)
Trichloroethene	NA	NA	ND (0.74)	ND (0.74)	ND (0.69)	ND (0.65)	0.0998J (0.68)	ND (0.64)
Xylenes (total)	NA	NA	ND (0.74)	ND (0.74)	ND (0.69)	ND (0.65)	0.169J (0.68)	ND (0.64)
Semi Volatile Organic Compounds								
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA
PCBs								
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons	4,280 (2,700)	3,760 (2,700)	NA	NA	NA	NA	NA	NA

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

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TABLE 11
Summary of Soil Sampling Results - Historic Fill Material
Chemical Leaman Tank Lines - Newark, New Jersey

Location	STRMFILL8B	STRMFILL8B	STRMFILL8C	STRMFILL8C	NJ Impact to Ground Water Soil Cleanup Criteria	NJ Residential Soil Cleanup Criteria	NJ Non-Residential Soil Cleanup Criteria
ENVIRON Sample ID	STRMFILL8B-SS01	STRMFILL8B-SS02	STRMFILL8C-SS01	STRMFILL8C-SS02			
Matrix	SOIL	SOIL	SOIL	SOIL			
Collection Method	GRAB	GRAB	GRAB	GRAB			
Depth	2.5 - 3.0	3.5 - 4.0	0.5 - 1.0	5.5 - 6.0			
Collection Date	07/18/2000	07/18/2000	07/18/2000	07/18/2000			
Comments							
Volatile Organic Compounds							
Benzene	ND (0.12)	ND (0.15)	ND (0.12)	ND (0.12)	1	3	13
cis-1,2-Dichloroethene	ND (0.6)	ND (0.74)	ND (0.6)	ND (0.63)	1	79	1,000
Ethyl Benzene	ND (0.12)	ND (0.15)	0.0714J (0.12)	ND (0.12)	100	1,000	1,000
Tetrachloroethene	ND (0.6)	ND (0.74)	0.104J (0.6)	ND (0.63)	1	4	6
Toluene	0.0868J (0.12)	0.0887J (0.15)	ND (0.12)	ND (0.12)	500	1,000	1,000
Trichloroethene	ND (0.6)	ND (0.74)	0.0589J (0.6)	ND (0.63)	1	23	54
Xylenes (total)	ND (0.6)	ND (0.74)	0.39J (0.6)	ND (0.63)	67	410	1,000
Semi Volatile Organic Compounds							
Acenaphthene	NA	NA	NA	NA	100	3,400	10,000
Acenaphthylene	NA	NA	NA	NA	--	--	--
Anthracene	NA	NA	NA	NA	100	10,000	10,000
Benzo(a)anthracene	NA	NA	NA	NA	500	0.9	4
Benzo(a)pyrene	NA	NA	NA	NA	100	0.66	0.66
Benzo(b)fluoranthene	NA	NA	NA	NA	50	0.9	4
Benzo(g,h,i)perylene	NA	NA	NA	NA	--	--	--
Benzo(k)fluoranthene	NA	NA	NA	NA	500	0.9	4
Chrysene	NA	NA	NA	NA	500	9	40
Fluoranthene	NA	NA	NA	NA	100	2,300	10,000
Fluorene	NA	NA	NA	NA	100	2,300	10,000
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	500	0.9	4
Naphthalene	NA	NA	NA	NA	100	230	4,200
Phenanthrene	NA	NA	NA	NA	--	--	--
Pyrene	NA	NA	NA	NA	100	1,700	10,000
PCBs							
Aroclor-1248	NA	NA	NA	NA	50	0.49	2
Aroclor-1260	NA	NA	NA	NA	50	0.49	2
Total Petroleum Hydrocarbons	NA	NA	NA	NA	--	10,000	--

Notes:

1. All concentrations are reported in mg/kg (ppm).
2. Only compounds detected in one or more samples are listed in this table; detection limits in parenthesis.
3. Underlined values exceed the Residential Direct Contact Soil Cleanup Criteria; double-underlined values exceed the Non-Residential Soil Cleanup Criteria.
4. Bold type values exceed the NJ impact to ground water cleanup criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 12
Summary of Ground Water Sampling Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	FILL5B	FILL5C	FILL7C	STAIN5B	STAIN6A	STAIN6A
ENVIRON Sample ID	FILL5B-GW01	FILL5C-GW01	FILL7C-GW01	STAIN 5B-GW01	STAIN 6A-GW01	STAIN 6A-GW11
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Collection Date	07/18/2000	07/18/2000	07/18/2000	07/19/2000	07/19/2000	07/19/2000
Comments						FIELD DUPLICATE
Volatile Organic Compounds						
1,1,1-Trichloroethane	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethane	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethene	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
1,2-Dichlorobenzene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,3-Dichlorobenzene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,4-Dichlorobenzene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Benzene	**6.2 (1)**	**6.1 (1)**	ND (1)	0.51J (1)	**10.6 (1)**	**12.9 (1)**
Bromodichloromethane	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Chloroethane	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Chloroform	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
cis-1,2-Dichloroethene	ND (5)	ND (5)	ND (5)	ND (5)	3J (5)	5.6 (5)
Ethyl Benzene	0.36J (1)	ND (1)	3.6 (1)	ND (1)	3.6 (1)	7.1 (1)
Methylene Chloride	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Tetrachloroethene	ND (1)	ND (1)	0.51J (1)	ND (1)	ND (1)	ND (1)
Toluene	0.9J (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
trans-1,2-Dichloroethene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Trichloroethene	ND (1)	ND (1)	ND (1)	ND (1)	0.54J (1)	**1.1 (1)**
Vinyl Chloride	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Xylenes (total)	2.1 (1)	ND (1)	17.4 (1)	ND (1)	17 (1)	32.4 (1)
SemiVolatile Organic Compounds						
Acenaphthene	NA	NA	NA	0.72J (2.1)	ND (2.1)	ND (2.1)
Benzo(a)anthracene	NA	NA	NA	0.55J (2.1)	ND (2.1)	ND (2.1)
Benzo(a)pyrene	NA	NA	NA	0.56J (2.1)	ND (2.1)	ND (2.1)
Benzo(b)fluoranthene	NA	NA	NA	0.85J (2.1)	ND (2.1)	ND (2.1)
Benzo(g,h,i)perylene	NA	NA	NA	0.55J (2.1)	ND (2.1)	ND (2.1)
Chrysene	NA	NA	NA	0.69J (2.1)	ND (2.1)	ND (2.1)
Fluoranthene	NA	NA	NA	1.1J (2.1)	ND (2.1)	ND (2.1)
Phenanthrene	NA	NA	NA	1.2J (2.1)	ND (2.1)	ND (2.1)
Pyrene	NA	NA	NA	1.2J (2.1)	ND (2.1)	ND (2.1)

Notes:

1. All concentrations are reported in ug/L (ppb).
2. Only compounds detected in one or more samples are listed in this table.
3. Bold type values exceed the NJ ground water quality criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 12
Summary of Ground Water Sampling Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	STRMFILL8C	TW01	TW01	TW02	TW03	TW04	TW05
ENVIRON Sample ID	STRMFILL8C-GW01	TW01-GW01	TW01-GW11	TW02-GW01	TW03-GW01	TW04-GW01	TW05-GW01
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Collection Date	07/18/2000	08/07/2000	08/07/2000	08/03/2000	08/03/2000	08/04/2000	08/03/2000
Comments			FIELD DUPLICATE				
Volatile Organic Compounds							
1,1,1-Trichloroethane	ND (5)	ND (5)	ND (5)	ND (5)	1.4J (5)	ND (25)	ND (5)
1,1-Dichloroethane	ND (5)	ND (5)	ND (5)	2.9J (5)	6.2 (5)	ND (25)	2.9J (5)
1,1-Dichloroethene	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (10)	ND (2)
1,2-Dichlorobenzene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	ND (5)
1,3-Dichlorobenzene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	0.33J (5)
1,4-Dichlorobenzene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	1.1J (5)
Benzene	ND (1)	ND (1)	ND (1)	0.33J (1)	**26.7 (1)**	ND (5)	**5.2 (1)**
Bromodichloromethane	ND (1)	**3.7 (1)**	**4 (1)**	ND (1)	ND (1)	ND (5)	ND (1)
Chlorobenzene	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (10)	1.5J (2)
Chloroethane	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	ND (5)
Chloroform	ND (5)	**29.4 (5)**	**30.7 (5)**	ND (5)	ND (5)	ND (25)	0.92J (5)
cis-1,2-Dichloroethene	ND (5)	ND (5)	ND (5)	3.1J (5)	25.4 (5)	ND (25)	**171 (5)**
Ethyl Benzene	ND (1)	ND (1)	ND (1)	ND (1)	248 (1)	ND (5)	66 (1)
Methylene Chloride	ND (2)	ND (2)	ND (2)	ND (2)	1.3J (2)	ND (10)	**48.8 (2)**
Tetrachloroethene	ND (1)	**2.1 (1)**	**2.2 (1)**	**5.7 (1)**	**14.2 (1)**	ND (5)	**1.5 (1)**
Toluene	ND (1)	ND (1)	ND (1)	ND (1)	28 (1)	ND (5)	30.2 (1)
trans-1,2-Dichloroethene	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	3J (5)
Trichloroethene	ND (1)	**1.9 (1)**	**2.1 (1)**	**1.8 (1)**	**2.2 (1)**	ND (5)	**2.2 (1)**
Vinyl Chloride	ND (1)	ND (1)	ND (1)	ND (1)	**25.6 (1)**	ND (5)	**43.8 (1)**
Xylenes (total)	ND (1)	ND (1)	ND (1)	ND (1)	70 (1)	ND (5)	30.6 (1)
SemiVolatile Organic Compounds							
Acenaphthene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA

Notes:

1. All concentrations are reported in ug/L (ppb).
2. Only compounds detected in one or more samples are listed in this table.
3. Bold type values exceed the NJ ground water quality criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

87737074

TABLE 12
Summary of Ground Water Sampling Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	TW06	TW07	TW08	TW09	TW10	TW11	TW12	TW13
ENVIRON Sample ID	TW06-GW01	TW07-GW01	TW08-GW01	TW09-GW01	TW10-GW01	TW11-GW01	TW12-GW01	TW13-GW01
Matrix	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
Collection Method	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
Collection Date	08/03/2000	08/04/2000	08/04/2000	08/03/2000	08/07/2000	08/04/2000	09/11/2000	09/11/2000
Comments								
Volatile Organic Compounds								
1,1,1-Trichloroethane	ND (5)	ND (5)	ND (25)	ND (120)	ND (5)	ND (5)	ND (5)	ND (5)
1,1-Dichloroethane	1.1J (5)	16.2 (5)	10.9J (25)	**341 (120)**	ND (5)	5.5 (5)	2.2J (5)	3J (5)
1,1-Dichloroethene	ND (2)	ND (2)	ND (10)	**14.9J (50)**	ND (2)	ND (2)	ND (2)	ND (2)
1,2-Dichlorobenzene	110 (5)	22.2 (5)	ND (25)	ND (120)	ND (5)	ND (5)	ND (5)	ND (5)
1,3-Dichlorobenzene	73.8 (5)	ND (5)	ND (25)	ND (120)	ND (5)	ND (5)	ND (5)	ND (5)
1,4-Dichlorobenzene	**213 (5)**	8.8 (5)	ND (25)	ND (120)	ND (5)	ND (5)	ND (5)	ND (5)
Benzene	**3.6 (1)**	**1.2 (1)**	**15.2 (5)**	**1,060 (25)**	0.63J (1)	**3 (1)**	**45 (1)**	**113 (1)**
Bromodichloromethane	ND (1)	ND (1)	ND (5)	ND (25)	ND (1)	ND (1)	ND (1)	ND (1)
Chlorobenzene	**279 (2)**	ND (2)	ND (10)	ND (50)	ND (2)	ND (2)	3.9 (2)	ND (2)
Chloroethane	ND (5)	1.6J (5)	ND (25)	ND (120)	ND (5)	11.2 (5)	ND (5)	ND (5)
Chloroform	**7.9 (5)**	ND (5)	ND (25)	ND (120)	ND (5)	ND (5)	ND (5)	ND (5)
cis-1,2-Dichloroethene	33.9 (5)	62.2 (5)	13.9J (25)	**9,340 (120)**	ND (5)	22.7 (5)	**309 (5)**	12.6 (5)
Ethyl Benzene	27.7 (1)	3.7 (1)	41.4 (5)	**1,020 (25)**	0.54J (1)	4 (1)	150 (1)	167 (1)
Methylene Chloride	**5.8 (2)**	ND (2)	ND (10)	ND (50)	ND (2)	ND (2)	ND (2)	ND (2)
Tetrachloroethene	**1.6 (1)**	**2.3 (1)**	ND (5)	ND (25)	ND (1)	0.58J (1)	**7.6 (1)**	ND (1)
Toluene	31.2 (1)	36.3 (1)	60.2 (5)	**1,920 (25)**	ND (1)	8.9 (1)	21.7 (1)	61.1 (1)
trans-1,2-Dichloroethene	ND (5)	1.4J (5)	ND (25)	52.5J (120)	ND (5)	ND (5)	ND (5)	1.3J (5)
Trichloroethene	**3.3 (1)**	**3.2 (1)**	ND (5)	ND (25)	ND (1)	ND (1)	**11.8 (1)**	**1.2 (1)**
Vinyl Chloride	4.3 (1)	**7.2 (1)**	3.1J (5)	**1,400 (25)**	ND (1)	4 (1)	**163 (1)**	ND (1)
Xylenes (total)	105 (1)	59.9 (1)	254 (5)	**4,480 (25)**	1.4 (1)	7.2 (1)	659 (1)	215 (1)
SemiVolatile Organic Compounds								
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1. All concentrations are reported in ug/L (ppb).
2. Only compounds detected in one or more samples are listed in this table.
3. Bold type values exceed the NJ ground water quality criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

TABLE 12
Summary of Ground Water Sampling Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	TW14	TW15	
ENVIRON Sample ID	TW14-GW01	TW15-GW01	NJ Class II-A
Matrix	GROUND WATER	GROUND WATER	Ground Water
Collection Method	GRAB	GRAB	Quality
Collection Date	09/11/2000	09/11/2000	Criteria
Comments			
Volatile Organic Compounds			
1,1,1-Trichloroethane	ND (5)	ND (5)	30
1,1-Dichloroethane	ND (5)	ND (5)	50
1,1-Dichloroethene	ND (2)	ND (2)	2
1,2-Dichlorobenzene	ND (5)	ND (5)	600
1,3-Dichlorobenzene	ND (5)	ND (5)	600
1,4-Dichlorobenzene	ND (5)	ND (5)	75
Benzene	ND (1)	**7.7 (1)**	1
Bromodichloromethane	ND (1)	ND (1)	1
Chlorobenzene	ND (2)	ND (2)	50
Chloroethane	ND (5)	ND (5)	--
Chloroform	ND (5)	ND (5)	6
cis-1,2-Dichloroethene	ND (5)	1.2*J* (5)	70
Ethyl Benzene	ND (1)	0.58*J* (1)	700
Methylene Chloride	ND (2)	ND (2)	3
Tetrachloroethene	ND (1)	ND (1)	1
Toluene	4.3 (1)	0.86*J* (1)	1,000
trans-1,2-Dichloroethene	ND (5)	ND (5)	100
Trichloroethene	ND (1)	ND (1)	1
Vinyl Chloride	ND (1)	ND (1)	5
Xylenes (total)	ND (1)	14.8 (1)	1,000
SemiVolatile Organic Compounds			
Acenaphthene	NA	NA	400
Benzo(a)anthracene	NA	NA	--
Benzo(a)pyrene	NA	NA	--
Benzo(b)fluoranthene	NA	NA	--
Benzo(g,h,i)perylene	NA	NA	--
Chrysene	NA	NA	--
Fluoranthene	NA	NA	300
Phenanthrene	NA	NA	--
Pyrene	NA	NA	200

Notes:

1. All concentrations are reported in ug/L (ppb).
2. Only compounds detected in one or more samples are listed in this table.
3. Bold type values exceed the NJ ground water quality criteria.

Abbreviations:

J = Estimated Concentration
NA = Not Analyzed
ND = Not Detected
( )= Detection Limit

87370076

TABLE 13
Summary of QA/QC Sample Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	QAQC	QAQC	QAQC	QAQC	QAQC
ENVIRON Sample ID	TB01-000718	TB01-000719	TB01-000801	TB01-000803	TB01-000804
Matrix	BLANK WATER	BLANK METHANOL	BLANK METHANOL	BLANK WATER	BLANK METHANOL
Collection Date	07/18/2000	07/19/2000	08/01/2000	08/03/2000	08/04/2000
Comments	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Volatile Organic Compounds	ND	ND	ND	ND	ND
Semi Volatile Organic Compounds	NA	NA	NA	NA	NA

Note:

1. All methanol concentrations are reported in mg/kg (ppm); water concentrations are in ug/L (ppb).

Abbreviations:

NA = Not Analyzed
ND = Not Detected

87737077

TABLE 13
Summary of QA/QC Sample Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	QAQC	QAQC	QAQC	QAQC	QAQC
ENVIRON Sample ID	TB01-000807	TB01-000808	TB01-000911	TB02-000718	TB02-000803
Matrix	BLANK WATER	BLANK METHANOL	BLANK WATER	BLANK METHANOL	BLANK METHANOL
Collection Date	08/07/2000	08/08/2000	09/11/2000	07/18/2000	08/03/2000
Comments	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Volatile Organic Compounds	ND	ND	ND	ND	ND
Semi Volatile Organic Compounds	NA	NA	NA	NA	NA

Note:

1. All methanol concentrations are reported in mg/kg (ppm); water concentrations are in ug/L (ppb).

Abbreviations:

NA = Not Analyzed
ND = Not Detected

87737078

TABLE 13
Summary of QA/QC Sample Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	QAQC	QAQC	QAQC	QAQC	QAQC
ENVIRON Sample ID	TB02-000911	TB-001107	WB01-000718	WB01-000719	WB01-000803
Matrix	BLANK METHANOL	BLANK METHANOL	BLANK WATER	BLANK WATER	GROUND WATER
Collection Date	09/11/2000	11/07/2000	07/18/2000	07/19/2000	08/03/2000
Comments	TRIP BLANK	TRIP BLANK	WASH BLANK	WASH BLANK	WASH BLANK
Volatile Organic Compounds	ND	ND	ND	ND	ND
Semi Volatile Organic Compounds	NA	NA	NA	ND	NA

Note:

1. All methanol concentrations are reported in mg/kg (ppm); water concentrations are in ug/L (ppb).

Abbreviations:

NA = Not Analyzed
ND = Not Detected

87737079

TABLE 13
Summary of QA/QC Sample Results
Chemical Leaman Tank Lines - Newark, New Jersey

Location	QAQC	QAQC
ENVIRON Sample ID	WB01-000804	WB01-000911
Matrix	BLANK WATER	BLANK WATER
Collection Date	08/04/2000	09/11/2000
Comments	WASH BLANK	WASH BLANK
Volatile Organic Compounds	ND	ND
Semi Volatile Organic Compounds	NA	NA

Note:

1. All methanol concentrations are reported in mg/kg (ppm); water concentrations are in ug/L (ppb).

Abbreviations:

NA = Not Analyzed
ND = Not Detected

87370080

TABLE 14
Status of Areas of Environmental Concern
Chemical Leaman Tank Lines – Newark, New Jersey

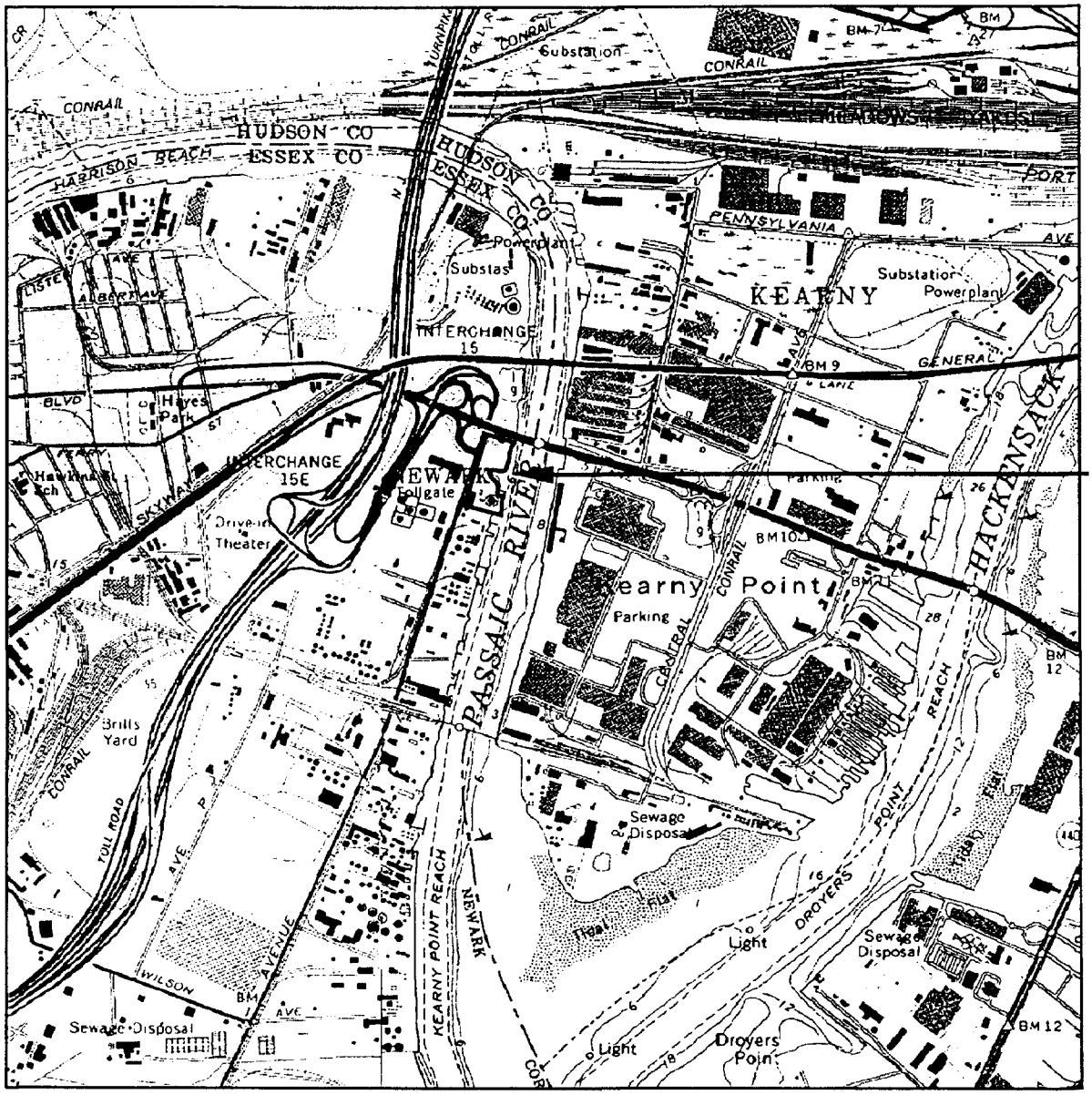
AOC Num.	Area Description	Status		
		NFA	AS	RA
AOC 1	Former No. 4 Fuel Oil AST		X	
AOC 1A	Two 20,000-Gallon Diesel Fuel ASTs	X		
AOC 2	Waste Oil AST		X	
AOC 3	Former Gasoline UST – South End of Site		X	
AOC 4	Former 250 Gallon Waste Oil UST	X		
AOC 5	Former Gasoline USTs – North End of Site	X		
AOC 6	Pre-Solv Filling Area		X	
AOC 7	Drum Storage Pad	X		
AOC 8	Maintenance Shop Drum Storage			X
AOC 9	Wash Bay Drainage System		X	
AOC 10	Wastewater System Settlement Tank		X	
AOC 11	Stained Soil near Red Storage Area	X		
AOC 12	Staining near Trailer Staging Area		X[2]	
AOC 13	Incident Spill Report		X	
AOC 14	Maintenance Building Concrete Vault		X[3]	
AOC 15	Unused Building	X		
NA	Historic Fill Material		X[2]	
NA	Ground Water Quality		X	

Notes:

1. NFA: Areas where no further actions have been proposed.
   AS: Areas where additional sampling or evaluation has been proposed.
   RA: Area where remedial activities have been proposed.
2. Evaluation of remedial alternatives to be completed following site characterization.
3. Additional actions to be completed following water line evaluation by municipal authority.

02-8374B:PRIN_WP\14068v1.DOC

FIGURES

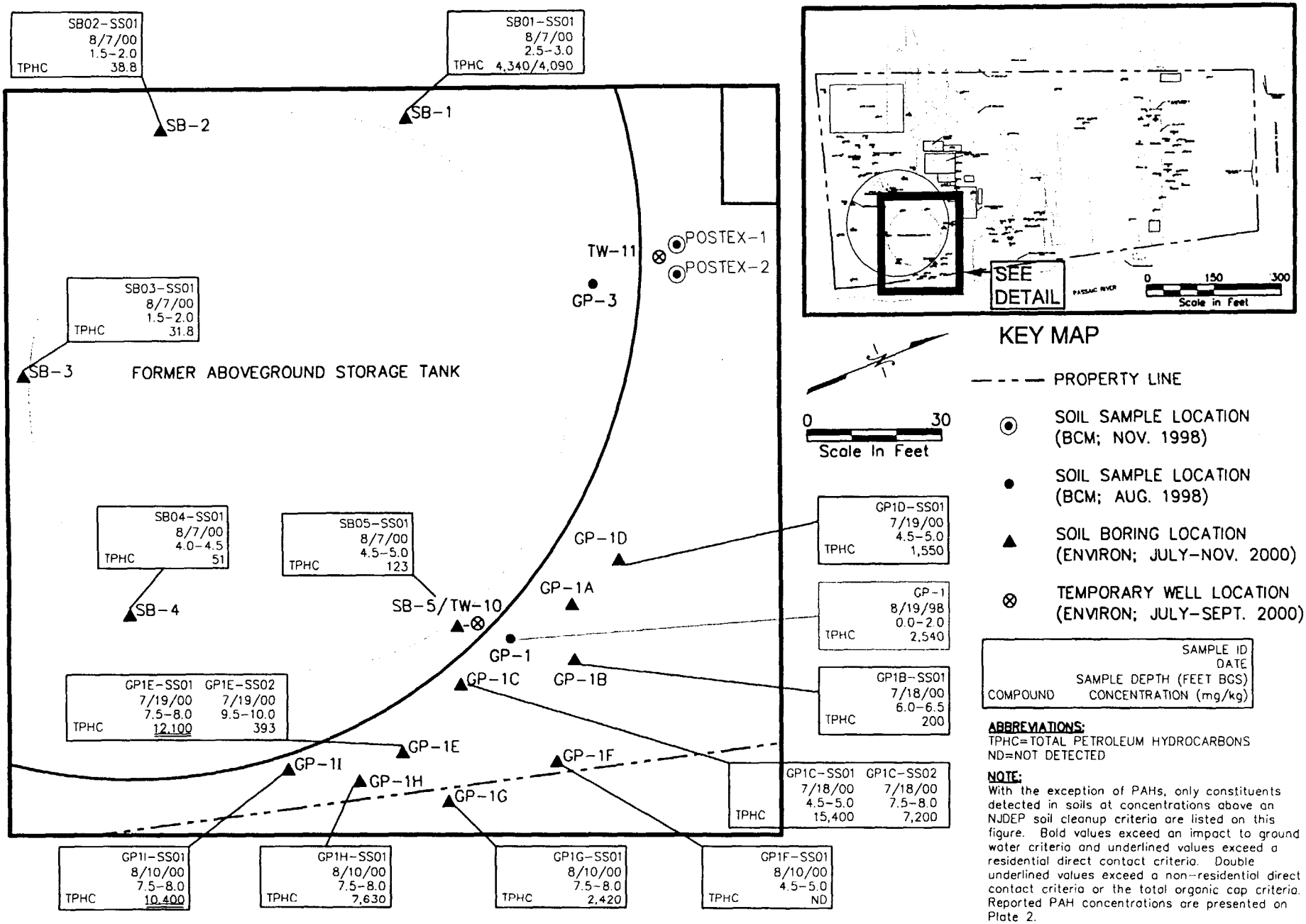


0 2000 4000

Scale in Feet

SOURCE: 40°43'52" N, 74°07'14" W NAD27TOPO! map printed on 01/19/00 from "Nyc.tpo"

ENVIRON	SITE LOCATION MAP CHEMICAL LEAMAN TANK LINES, INC. NEWARK, NEW JERSEY	FIGURE 1
DRAFTED BY: TSP | DATE: 1/19/00		8374aj01



ABBREVIATIONS:
TPHC=TOTAL PETROLEUM HYDROCARBONS
ND=NOT DETECTED

NOTE:
With the exception of PAHs, only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria. Reported PAH concentrations are presented on Plate 2.

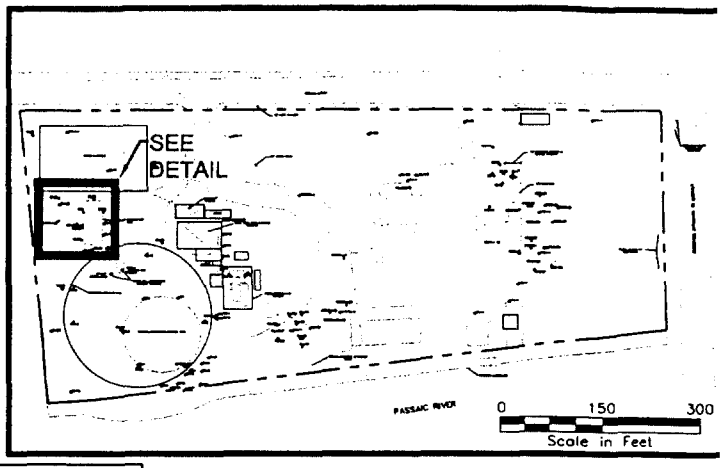
ENVIRON

DRAFTED BY: KPM/HFZ | DATE: 11/2/00

AOC 1 – FORMER NO. 4 FUEL OIL AST
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE
2

8374BC1A



	GP-4(BCM-2) 8/19/98 1.5-2.0	GP-4(BCM-2) 8/19/98 3.0-3.5
VOC		
Methylene Chloride	NA	**2.87**
SVOC	NA	NA
PCB	NA	NA
METALS	NA	NA

	WASTE-SS01 8/3/00 3.0-3.5
VOC	ND
SVOC	NE
PCB	ND
METALS	NE

	SB06-SS01 8/30/00 3.0-3.5
VOC	NE/NE
LEAD	ND/ND

	SB24-SS01 9/11/00 2.5-3.0
VOC	NE
LEAD	ND

OFFICE & GARAGE

SB-24

TW-05

SB-6

SB25

FORMER GASOLINE UST AREA

GP-4(BCM-2)

SB-26

WASTE-1

SB-29

SB-7

SB-28

SB-27

SB-8

TW-06

	SB29-SS01 9/11/00 0.5-1.0
VOC	ND
LEAD	NE

	SB28-SS01 9/11/00 3.0-3.5
VOC	ND
LEAD	ND

	SB27-SS01 9/11/00 1.5-2.0
VOC	NE
LEAD	NE

	SB25-SS01 9/11/00 0.5-1.0
VOC	ND
LEAD	NE

	SB26-SS01 9/11/00 0.5-1.0
VOC	NE
LEAD	NE

	SB07-SS01 8/3/00 2.0-2.5
VOC	NE
LEAD	ND

KEY MAP

- ⊙ SOIL SAMPLE LOCATION (BCM; NOV. 1998)
- ● SOIL SAMPLE LOCATION (BCM; AUG. 1998)
- ▲ SOIL BORING LOCATION (ENVIRON; JULY-NOV. 2000)
- ⊗ TEMPORARY WELL LOCATION (ENVIRON; JULY-SEPT. 2000)

	SAMPLE ID DATE
COMPOUND	SAMPLE DEPTH (FEET BGS) CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
SVOC=SEMI VOLATILE ORGANIC COMPOUNDS
PCB=POLYCHLORINATED BIPHENYLS
ND=NOT DETECTED
NE=NO EXCEEDANCE
NA=NOT ANALYZED

NOTE:
Only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria.

0 20
Scale In Feet

ENVIRON

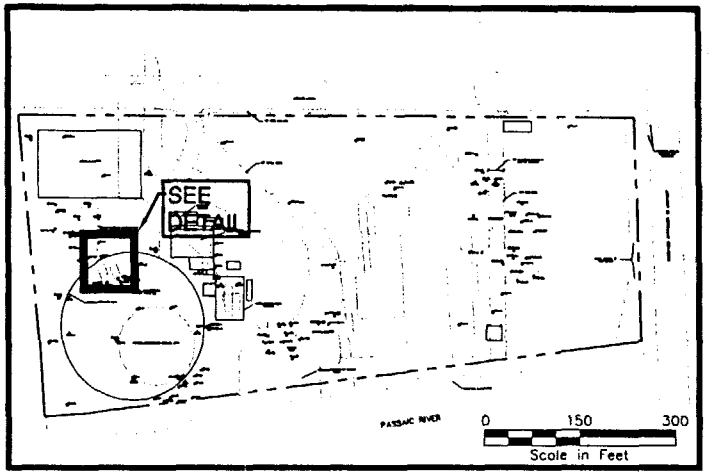
DRAFTED BY: KPM/HFZ | DATE: 11/2/00

AOC 3 & AOC 4 – FORMER GASOLINE USTs & FORMER WASTE OIL UST

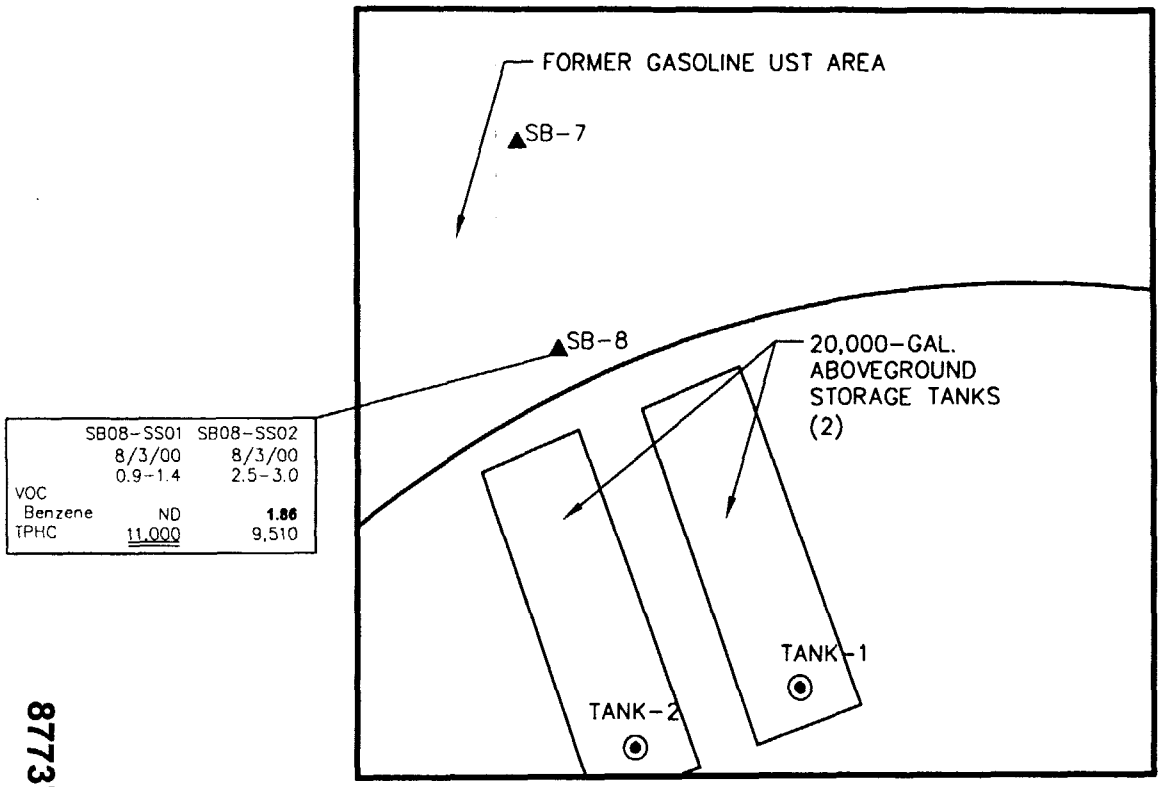
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE 3

8374BC1B



KEY MAP



	SB08-SS01	SB08-SS02
	8/3/00	8/3/00
	0.9-1.4	2.5-3.0
VOC		
Benzene	ND	**1.86**
TPHC	11,000	9,510

◉ SOIL SAMPLE LOCATION (BCM; NOV. 1998)

▲ SOIL BORING LOCATION (ENVIRON; JULY-NOV. 2000)

	SAMPLE ID
	DATE
	SAMPLE DEPTH (FEET BGS)
COMPOUND	CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
TPHC=TOTAL PETROLEUM HYDROCARBONS
ND=NOT DETECTED

NOTE:
Only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria.

0 20
Scale In Feet

87370086

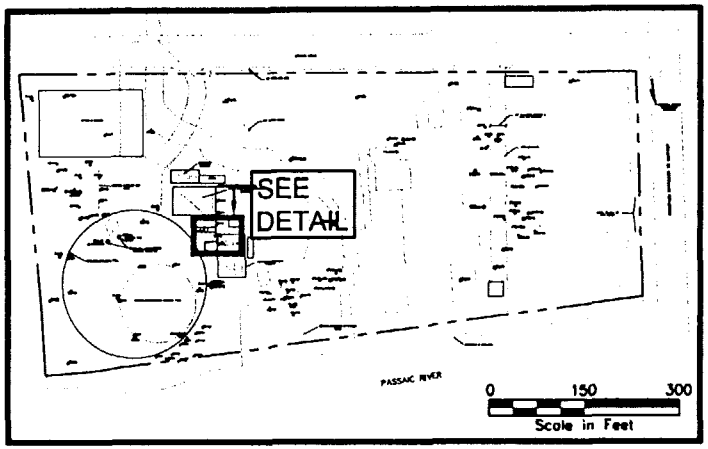
ENVIRON

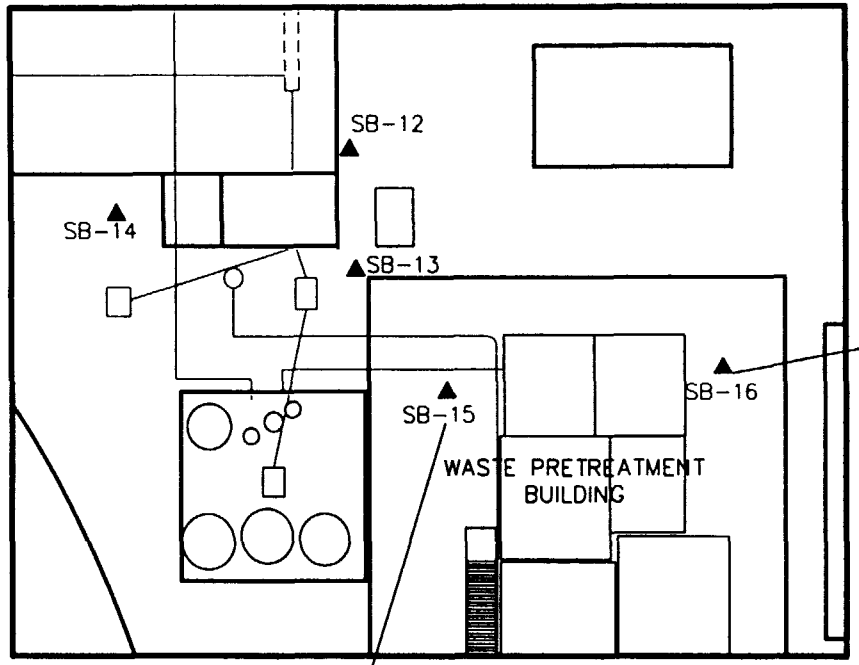
AOC 6 – PRE-SOLV FILLING AREA

CHEMICAL LEAMAN TANK LINES, INC.

FIGURE 4

877370087





SB15-SS01	
8/10/00	
1.1-1.6	
VOC	NE
PEST	ND
PCB	ND
METALS	NE

SB16-SS01	
8/10/00	
1.0-1.5	
VOC	NE
PEST	NE
PCB	NE
METALS	NE

0 20
Scale In Feet

KEY MAP

- BUILDING OUTLINE
- WASTEWATER PIPING
- ▲ SOIL BORING LOCATION (ENVIRON; JULY-NOV. 2000)

SAMPLE ID
DATE
SAMPLE DEPTH (FEET BGS)
COMPOUND CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
PEST=PESTICIDES
PCB=POLYCHLORINATED BIPHENYLS
NE=NO EXCEEDANCE

NOTE:
With the exception of PAHs, only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria. Reported PAH concentrations are presented on Plate 2.

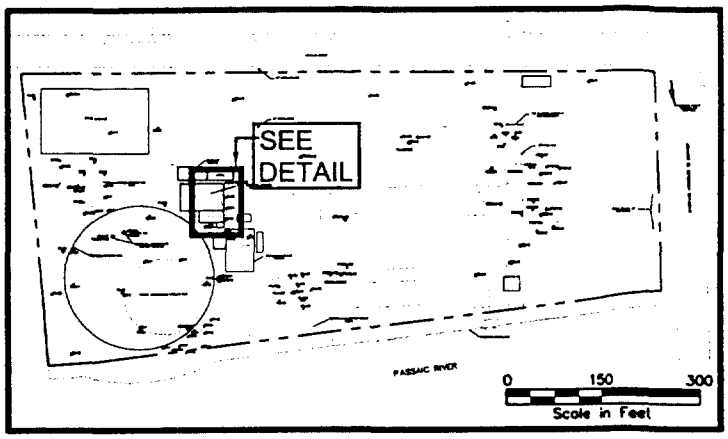
ENVIRON

DRAFTED BY: KPM/HFZ | DATE: 11/2/00

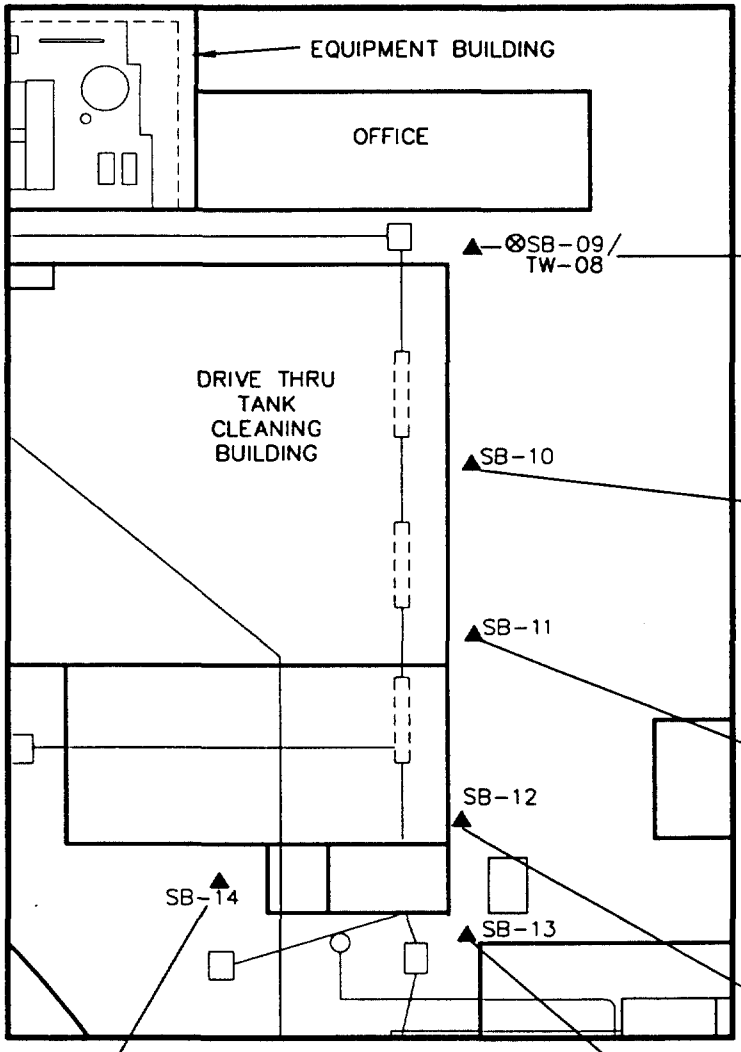
AOC 7 – FORMER DRUM STORAGE PAD
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE
5

8374BC1E



KEY MAP



BUILDING OUTLINE

WASTEWATER PIPING

▲ SOIL BORING LOCATION (ENVIRON; JULY-NOV. 2000)

⊗ TEMPORARY WELL LOCATION (ENVIRON; JULY-SEPT. 2000)

	SB09-SS01
	8/4/00
	2.5-3.0
VOC	
PCE	ND
SVOC	
bis(2-e)p	40.4
PEST	NE
PCB	ND
METALS	
As	90.3

	SB10-SS01
	8/4/00
	0.5-1.0
VOC	
PCE	ND
SVOC	
bis(2-e)p	88.9
PEST	NE
PCB	NE
METALS	
As	1.9

	SB11-SS01
	8/4/00
	1.5-2.0
VOC	
PCE	ND
SVOC	
bis(2-e)p	14.5
PEST	NE
PCB	NE
METALS	
As	2.4

	SB12-SS01
	8/7/00
	1.5-2.0
VOC	
PCE	ND
SVOC	
bis(2-e)p	0.59
PEST	NE
PCB	NE
METALS	
As	ND

	SB14-SS01
	8/7/00
	2.0-2.5
VOC	
PCE	**1.71**
SVOC	
bis(2-e)p	35
PEST	NE
PCB	ND
METALS	
As	10.9

	SB13-SS01
	8/7/00
	2.0-2.5
VOC	
PCE	ND
SVOC	
bis(2-e)p	31.8
PEST	NE
PCB	ND
METALS	
As	2.7

SAMPLE ID
DATE
SAMPLE DEPTH (FEET BGS)
COMPOUND CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
SVOC=SEMI VOLATILE ORGANIC COMPOUND
PEST=PESTICIDES
PCB=POLYCHLORINATED BIPHENYLS
As-ARSENIC
bis(2-e)p=BIS(2-ETHYLHEXYL)PHTHALATE
ND=NOT DETECTED
NE=NO EXCEEDANCE

NOTE:
Only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria.

0 20
Scale In Feet

ENVIRON

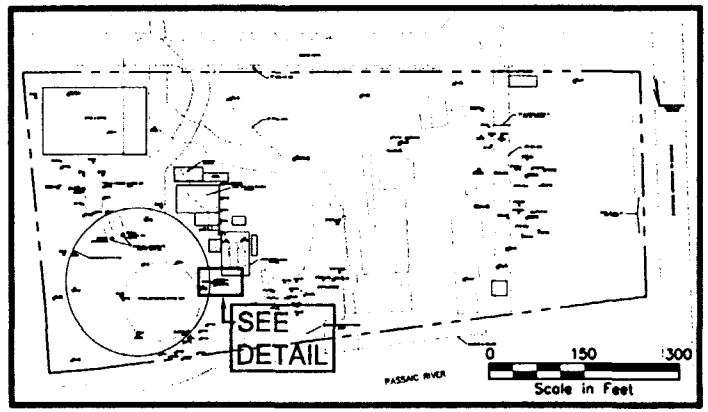
DRAFTED BY: KPM/HFZ | DATE: 11/2/00

AOC 9 & AOC 10 - WASH BAY DRAINAGE SYSTEM & WASTEWATER SYSTEM SETTLEMENT TANK

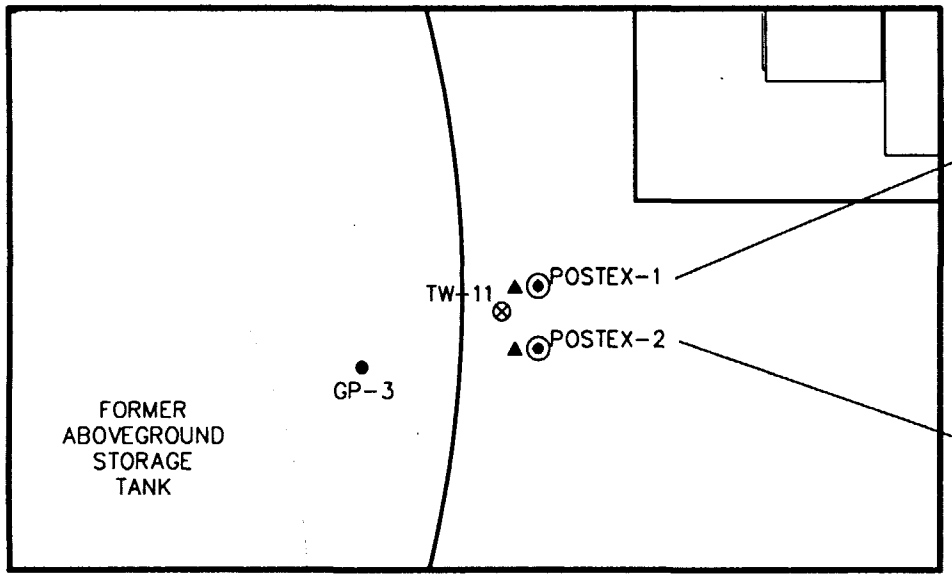
CHEMICAL LEAMAN TANK LINES, INC., NEWARK, NEW JERSEY

FIGURE 6

8374BC1G



KEY MAP



POSTEX1-SS01	
8/1/00 AND 11/7/00	
0.5-1.0	
VOC	NE
METALS	
Sb	6.5
Cu	247
Pb	727
Zn	1,210

POSTEX2-SS01	
8/1/00 AND 11/7/00	
0.5-1.0	
VOC	NE
METALS	
Sb	15.8
Cu	772
Pb	2,060
Zn	3,400

- ⊙ SOIL SAMPLE LOCATION (BCM; NOV. 1998)
- ● SOIL SAMPLE LOCATION (BCM; AUG. 1998)
- ▲ SOIL BORING LOCATION (ENVIRON; JULY-NOV. 2000)
- ⊗ TEMPORARY WELL LOCATION (ENVIRON; JULY-SEPT. 2000)

SAMPLE ID
DATE
SAMPLE DEPTH (FEET BGS)
COMPOUND CONCENTRATION (mg/kg)

NOTE:
Only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria.

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
NE=NO EXCEEDANCE
Sb=ANTIMONY
Cu=COPPER
Pb=LEAD
Zn=ZINC

0 20
Scale In Feet

ENVIRON

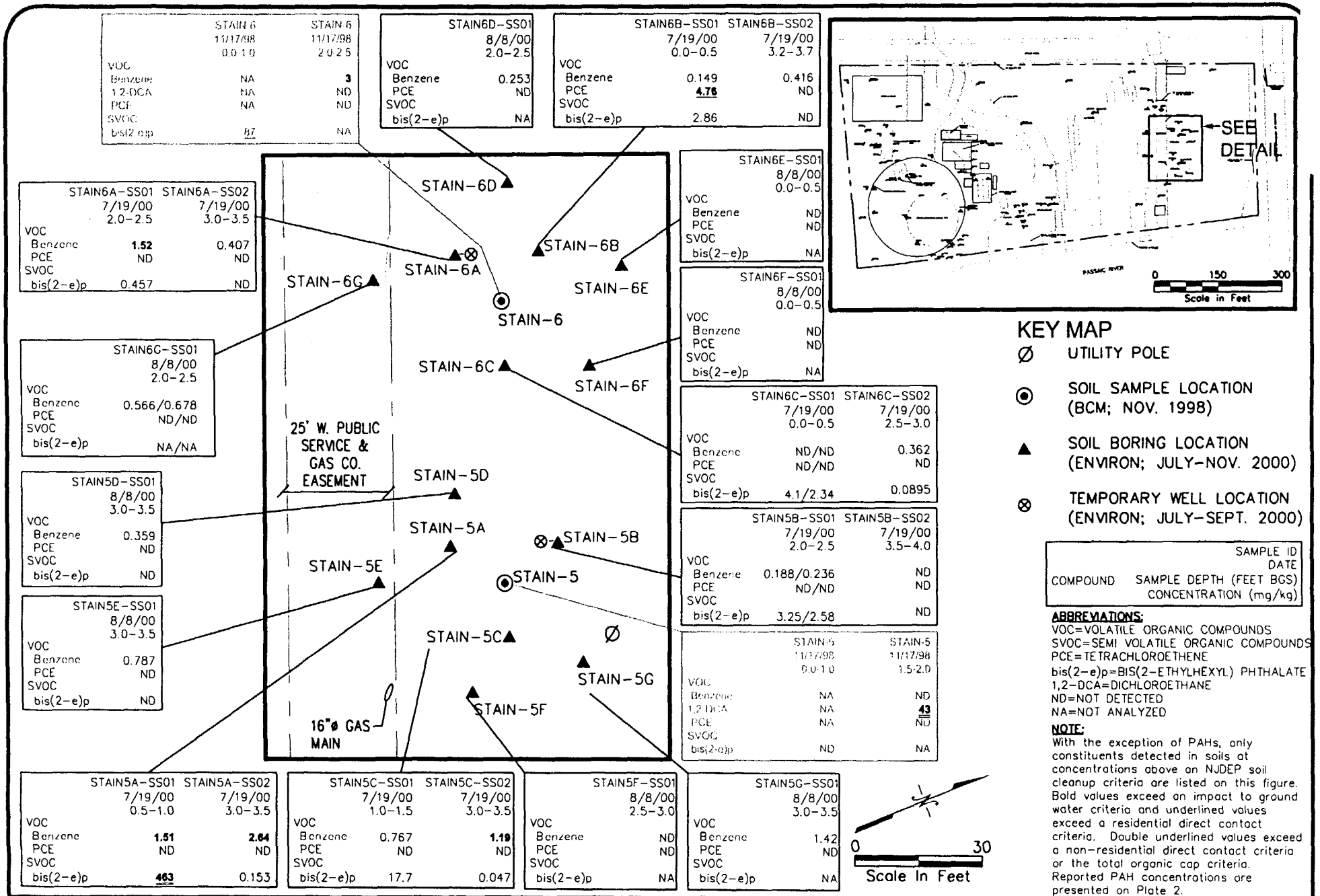
DRAFTED BY: KPM/HFZ | DATE: 11/2/00

AOC 11 – STAINED SOIL NEAR RED STORAGE AREA
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE
7

8374C

877370090



KEY MAP

- ø UTILITY POLE
- ⊙ SOIL SAMPLE LOCATION (BCM; NOV. 1998)
- ▲ SOIL BORING LOCATION (ENVIRON; JULY–NOV. 2000)
- ⊗ TEMPORARY WELL LOCATION (ENVIRON; JULY–SEPT. 2000)

	SAMPLE ID DATE
COMPOUND	SAMPLE DEPTH (FEET BGS) CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
SVOC=SEMI VOLATILE ORGANIC COMPOUNDS
PCE=TETRACHLOROETHENE
bis(2-e)p=BIS(2-ETHYLHEXYL) PHTHALATE
1,2-DCA=DICHLOROETHANE
ND=NOT DETECTED
NA=NOT ANALYZED

NOTE:
With the exception of PAHs, only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria. Reported PAH concentrations are presented on Plate 2.

ENVIRON

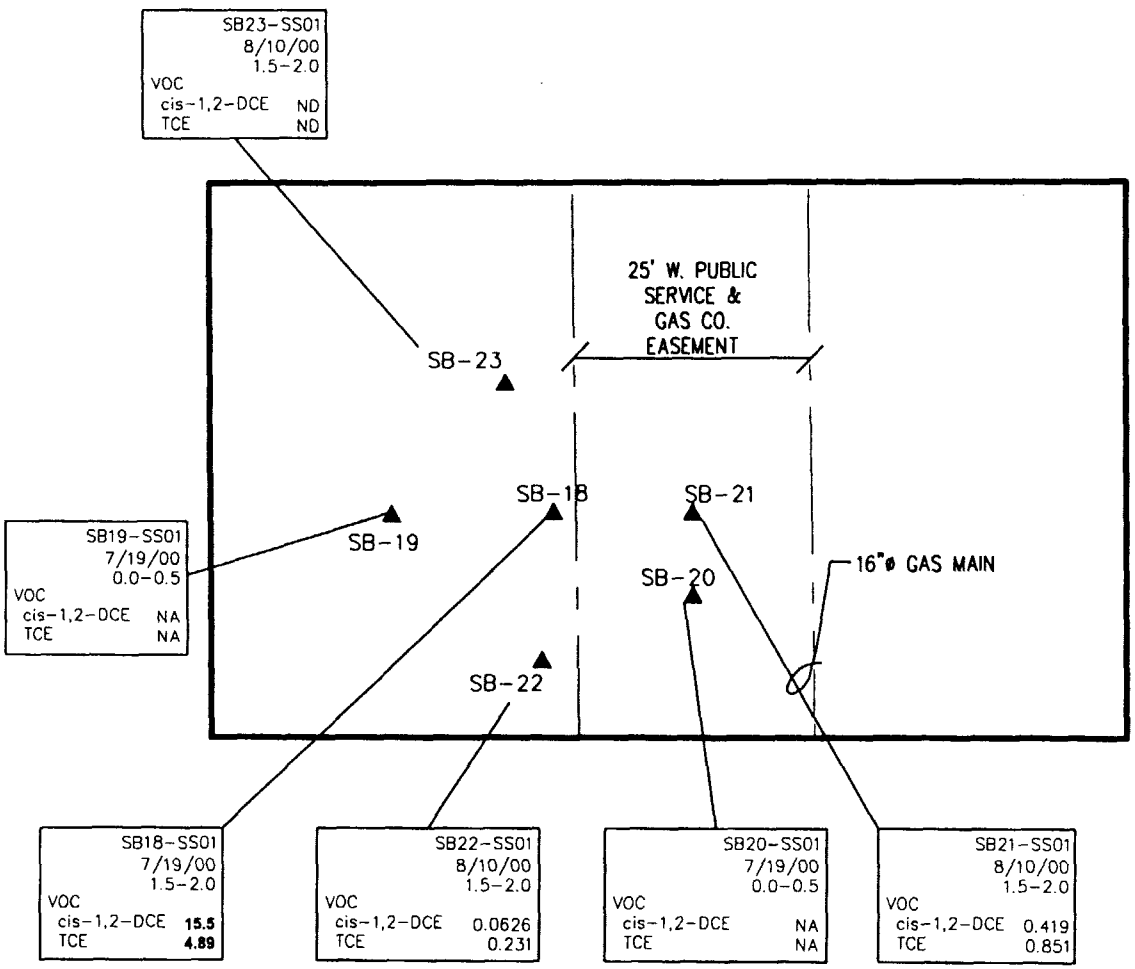
DRAFTED BY: KPM/HFZ | DATE: 11/2/00

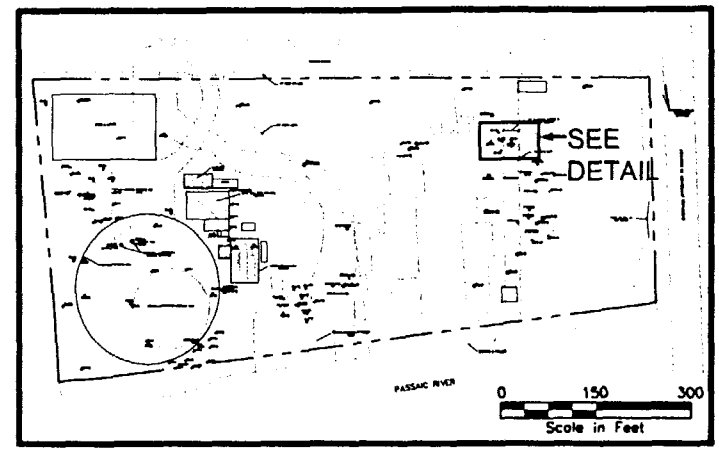
AOC 12 – STAINING NEAR TRAILER STAGING AREA
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE 8

8374BC1J

877370091





KEY MAP

▲ SOIL BORING LOCATION (ENVIRON; JULY–NOV. 2000)

SAMPLE ID
DATE
COMPOUND SAMPLE DEPTH (FEET BGS)
CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
cis-1,2-DCE=CIS-1,2-DICHLOROETHENE
TCE=TRICHLOROETHENE
ND=NOT DETECTED
NA=NOT ANALYZED

NOTE:
With the exception of PAHs, only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria. Reported PAH concentrations are presented on Plate 2.

0 20
Scale In Feet

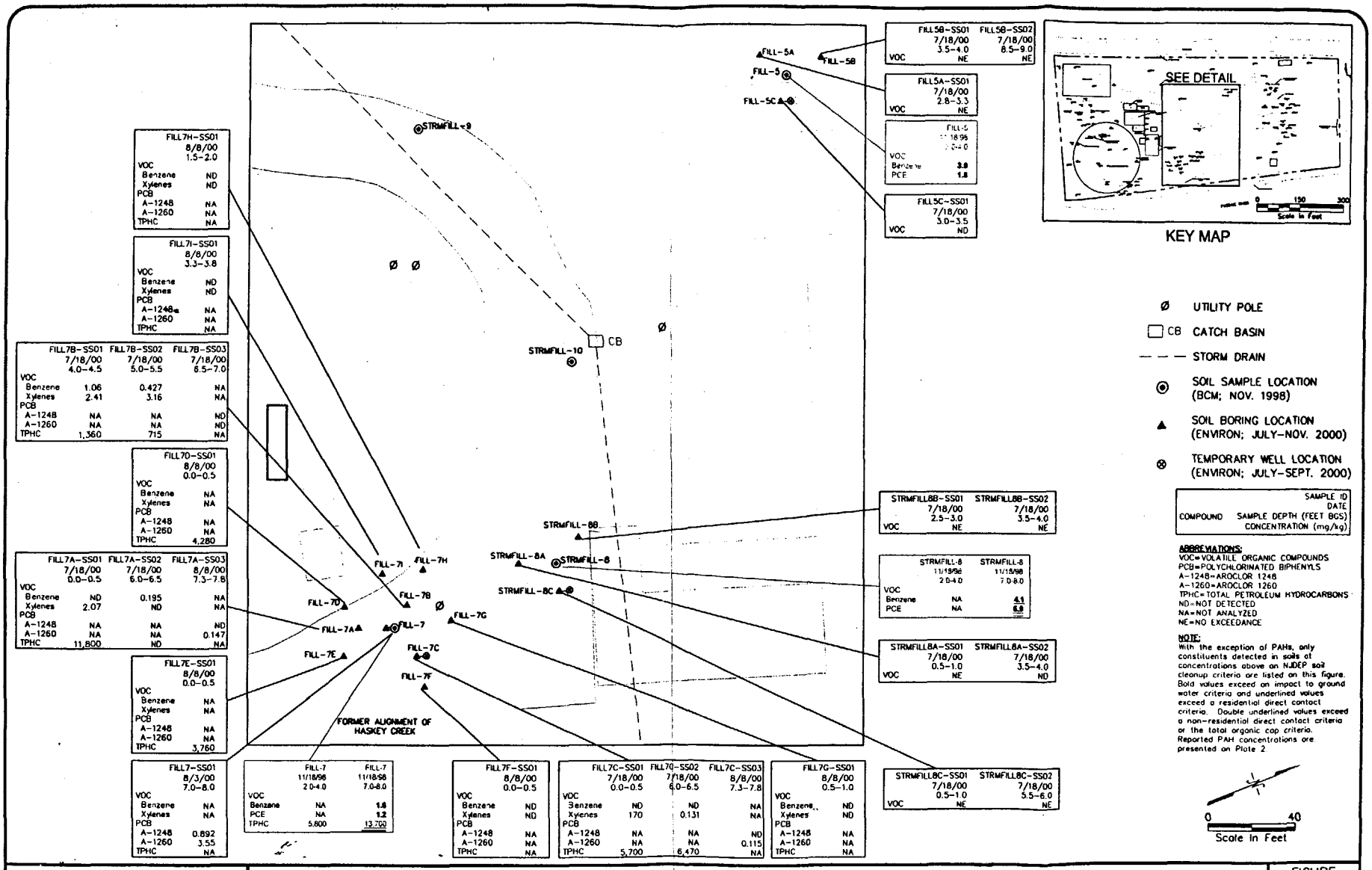
ENVIRON

DRAFTED BY: KPM/HFZ | DATE: 11/2/00

AOC 13 – INCIDENT SPILL REPORT
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE
9

8374BC1K



FILL5B-SS01	FILL5B-SS02
7/18/00	7/18/00
3.5-4.0	8.5-9.0
VOC NE	NE

FILL5A-SS01
7/18/00
2.8-3.3
VOC NE

FILL-5
11/18/98
2.0-4.0
VOC
Benzene 3.8
PCE 1.8

FILL5C-SS01
7/18/00
3.0-3.5
VOC ND

FILL7H-SS01
8/8/00
1.5-2.0
VOC
Benzene ND
Xylenes ND
PCB
A-1248 NA
A-1260 NA
TPHC NA

FILL7I-SS01
8/8/00
3.3-3.8
VOC
Benzene ND
Xylenes ND
PCB
A-1248 NA
A-1260 NA
TPHC NA

	FILL7B-SS01	FILL7B-SS02	FILL7B-SS03
	7/18/00	7/18/00	7/18/00
	4.0-4.5	5.0-5.5	6.5-7.0
VOC			
Benzene	1.06	0.427	NA
Xylenes	2.41	3.16	NA
PCB			
A-1248	NA	NA	ND
A-1260	NA	NA	ND
TPHC	1,360	715	NA

FILL7D-SS01
8/8/00
0.0-0.5
VOC
Benzene NA
Xylenes NA
PCB
A-1248 NA
A-1260 NA
TPHC 4,280

	FILL7A-SS01	FILL7A-SS02	FILL7A-SS03
	7/18/00	7/18/00	8/8/00
	0.0-0.5	6.0-6.5	7.3-7.8
VOC			
Benzene	ND	0.195	NA
Xylenes	2.07	ND	NA
PCB			
A-1248	NA	NA	ND
A-1260	NA	NA	0.147
TPHC	11,800	ND	NA

FILL7E-SS01
8/8/00
0.0-0.5
VOC
Benzene NA
Xylenes NA
PCB
A-1248 NA
A-1260 NA
TPHC 3,760

FILL7-SS01
8/3/00
7.0-8.0
VOC
Benzene NA
Xylenes NA
PCB
A-1248 0.892
A-1260 3.55
TPHC NA

	FILL-7	FILL-7
	11/18/98	11/18/98
	2.0-4.0	7.0-8.0
VOC		
Benzene	NA	1.6
PCE	NA	1.2
TPHC	5,800	13,700

FILL7F-SS01
8/8/00
0.0-0.5
VOC
Benzene ND
Xylenes ND
PCB
A-1248 NA
A-1260 NA
TPHC NA

	FILL7C-SS01	FILL7C-SS02	FILL7C-SS03
	7/18/00	7/18/00	8/8/00
	0.0-0.5	6.0-6.5	7.3-7.8
VOC			
Benzene	ND	ND	NA
Xylenes	170	0.131	NA
PCB			
A-1248	NA	NA	ND
A-1260	NA	NA	0.115
TPHC	5,700	6,470	NA

FILL7G-SS01
8/8/00
0.5-1.0
VOC
Benzene ND
Xylenes ND
PCB
A-1248 NA
A-1260 NA
TPHC NA

	STRMFILL8B-SS01	STRMFILL8B-SS02
	7/18/00	7/18/00
	2.5-3.0	3.5-4.0
VOC	NE	NE

	STRMFILL-8	STRMFILL-8
	11/19/98	11/19/98
	2.0-4.0	7.0-8.0
VOC		
Benzene	NA	4.1
PCE	NA	6.9

	STRMFILL8A-SS01	STRMFILL8A-SS02
	7/18/00	7/18/00
	0.5-1.0	3.5-4.0
VOC	NE	ND

	STRMFILL8C-SS01	STRMFILL8C-SS02
	7/18/00	7/18/00
	0.5-1.0	5.5-6.0
VOC	NE	NE

SAMPLE ID
DATE
COMPOUND SAMPLE DEPTH (FEET BGS)
CONCENTRATION (mg/kg)

ABBREVIATIONS:
VOC=VOLATILE ORGANIC COMPOUNDS
PCB=POLYCHLORINATED BIPHENYLS
A-1248=AROCLOR 1248
A-1260=AROCLOR 1260
TPHC=TOTAL PETROLEUM HYDROCARBONS
ND=NOT DETECTED
NA=NOT ANALYZED
NE=NO EXCEEDANCE

NOTE:
With the exception of PAHs, only constituents detected in soils at concentrations above an NJDEP soil cleanup criteria are listed on this figure. Bold values exceed an impact to ground water criteria and underlined values exceed a residential direct contact criteria. Double underlined values exceed a non-residential direct contact criteria or the total organic cap criteria. Reported PAH concentrations are presented on Plate 2.

ENVIRON

DRAFTED BY: KPM/HFZ | DATE: 11/2/00

FILL MATERIAL SAMPLE LOCATIONS
CHEMICAL LEAMAN TANK LINES, INC.
NEWARK, NEW JERSEY

FIGURE
10
8374BC1L

877370092